ICE and REFRIGERATION

New Ice Manufacturing Plant of Pacific Fruit Express... Page 13

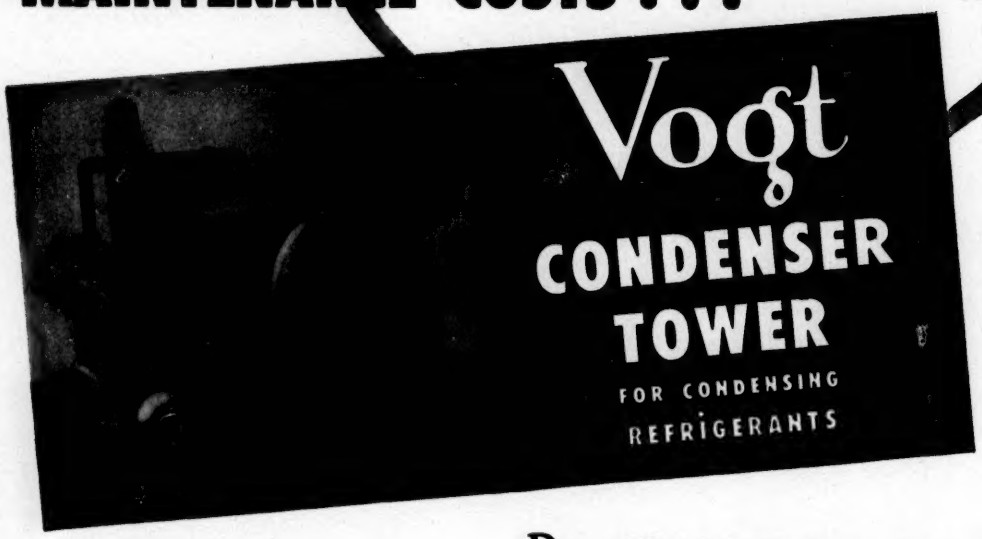
FEBRUARY • 1953

Selling Ice Through Vending Stations in St. Louis... Page 33

New

SAVES WATER and CUTS MAINTENANCE COSTS . . .

Illustration shows two views of a 35 ton Condenser Tower prior to partial disassembly for shipment.



SINGLE RESPONSIBILITY:

Vogt, leading builder of refrigeration condensers, assumes responsibility for engineering the unit. Only one purchase order needed.

SHOP FITTED:

To cut down field assembly labor. Requires no cutting or fitting of pipe.

Designed for today's water conservation requirements, and to keep refrigeration costs low, the *new* Vogt Condenser Tower meets the need for a proven, readily cleanable condensing unit.

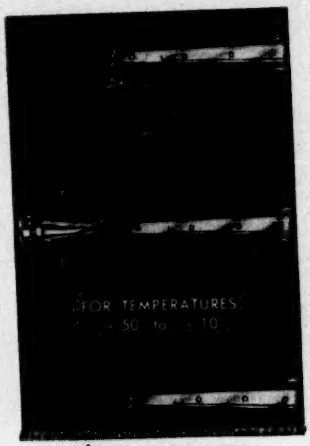
The Vogt Condenser Tower consists of a multipass straight tube condenser, a receiver, an oil trap, a cooling tower, and a water pump. Removable cast iron heads permit easy cleaning of the condenser tubes.

Water costs are extremely low since the cooling water is recirculated continuously and requires only a small amount of makeup to replace losses due to windage and evaporation.

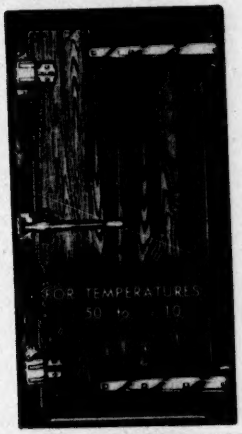
Condenser Tower units are available in capacities ranging from 5 to 50 tons refrigeration. Additional information will be furnished upon request.

HENRY VOGT MACHINE CO., Louisville 10, Kentucky

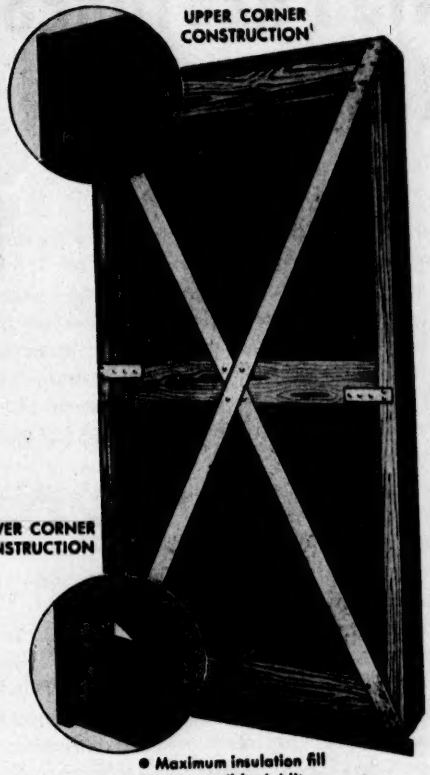
BRANCH OFFICES: NEW YORK, PHILADELPHIA, CLEVELAND, CHICAGO, ST. LOUIS, DALLAS, CHARLESTON, W. VA.



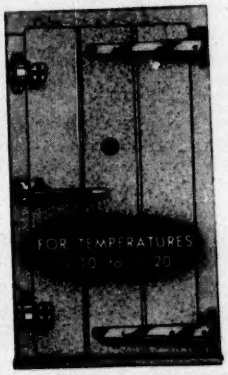
COOLER-FREEZER DOOR
- Modern streamlined job
- 100% "Douglas Fir"
- Sanitary hardware



X-52 PLYWOOD PANEL DOOR
- Plywood front and back
- Extra heavy-duty hardware
- Special type gaskets

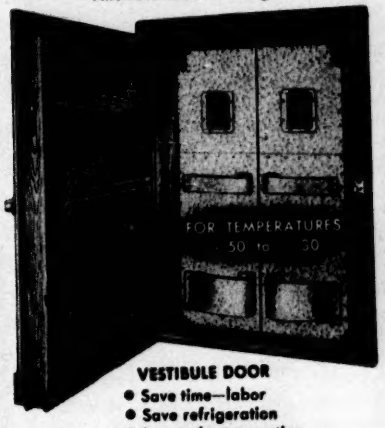


- Maximum insulation fill
- Most possible rigidity
- Allows reversal of swing



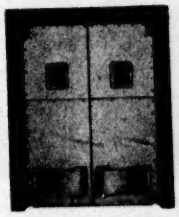
LOW TEMPERATURE DOOR
- Entire metal-clad front
- Extra heavy-duty hardware
- Special type gaskets

SUPER FREEZER (OVER-LAP) DOOR
- Extra-heavy construction
- Extra-heavy duty gaskets
- Extra heavy-duty hardware

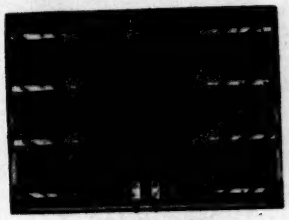


VESTIBULE DOOR
- Save time—labor
- Save refrigeration
- Large plant operation

TRACK DOOR
- For abattoirs
- Meat handling rails
- Banana rooms



AUTO-CLOSE DOOR
- For loading dock
- Intra-cooler doors
- Heavy trucking



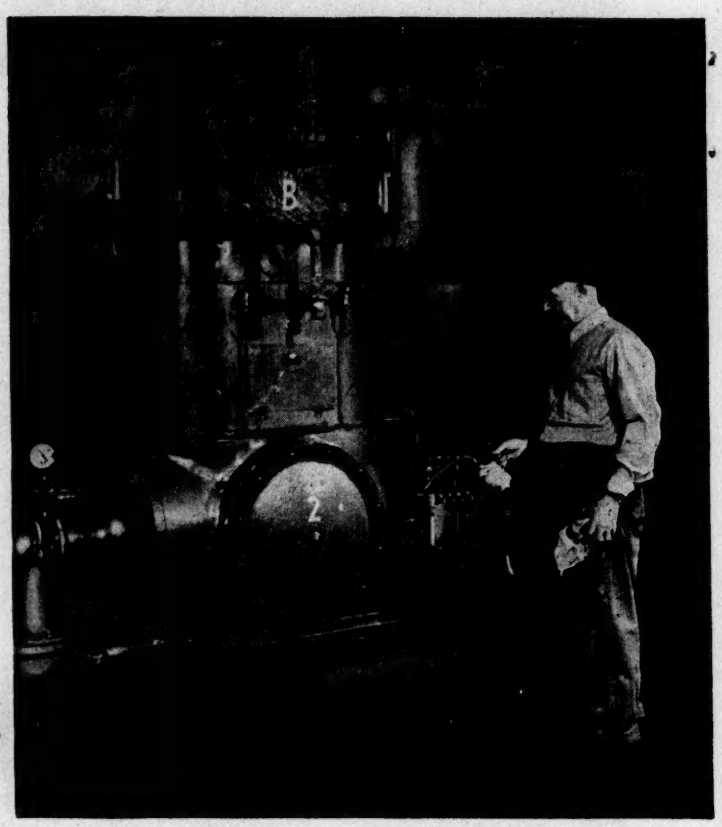
DOUBLE DOOR
- For palletizing
- For carloading
- For elevator shafts

BUTCHER BOY REFRIGERATOR DOOR CO. • HARVARD, ILL.

SUNISO RESTORES COMPRESSOR EFFICIENCY FOR WELL-KNOWN ICE CREAM MANUFACTURER

Production of the famous Louis Sherry ice creams was threatened by an inadequate refrigeration oil. It formed sludge and carbon that robbed the compressors of efficiency. Deposits were so heavy that the line filters had to be fitted with special handles in order to be rotated. Every two weeks the oil had to be drained from the entire system and passed through special filtering equipment. Complete oil changes were frequently necessary.

Facing this serious condition, the plant called in a Sun representative for technical assistance. He recommended a Suniso Refrigeration Oil. His recommendation was followed, and the result has been absolutely trouble-free operation of all the compressors. Four years have passed, and they are functioning perfectly at temperatures ranging from 160 F to -30 F. Sludge and carbon deposits have been eliminated. The line filters turn with a twist of the wrist at all times. The oil is now changed only once every six months. Oil consumption has been reduced 66 percent, overall maintenance reduced 33 percent.



NO MORE SLUDGE AND CARBON. Four years ago a refrigeration oil hindered efficient operation of the nine compressors used in the Louis Sherry ice cream plant. The heavy deposits the oil formed necessitated special handles for operation of the line filters, plus frequent draining for external oil filtering. Changing to Suniso ended the trouble.

Sun Oil Company, Dept. IR-2, Phila. 3, Pa.

We are having compressor troubles possibly due to faulty lubrication.

- ☐ I would like to consult with a Sun representative.
- ☐ Send me a free copy of the technical bulletin "Lubrication of Refrigeration and Air Conditioning Equipment."

Name_____

Title_____

Company_____

Street_____

City_____ Zone____ State____

TECHNICAL ASSISTANCE AVAILABLE. Sun's engineers are at your service for consultation on lubrication matters. It will pay you to utilize the broad experience they have gained in solving a wide variety of problems in many different industries.

SUNISO DOES NOT "WAX OUT." In the hardening rooms, where $175,000 worth of ice cream is stored before shipment, temperatures are held between −25 F and −30 F. This is no challenge to Suniso, which remains waxfree at temperatures far lower.

OVER 1,000,000 GALLONS of ice cream is made by Louis Sherry every year. Four 300-gallon-per-hour and three 150-gallon-per-hour freezers lower the temperature of the mix to 22 F for packaging at the rate of 30 pints a minute.

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ICE and Refrigeration

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February, 1953

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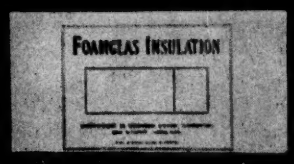

Pet Milk walls cold in, moisture out with...

FOAMGLAS®

FOAMGLAS, the *stay-dry* insulation, keeps moisture out because its sealed glass cells are waterproof, while *ordinary* insulations absorb moisture and lose their efficiency.

Mr. R. O. Jenkins, Pet Dairy's Assistant General Manager indicates that was a major reason why FOAMGLAS was specified for insulating the walls, floors and ceilings in their new plant at Columbia, S.C. He writes, "FOAMGLAS has an ideal combination of properties for our low temperature installation . . . its waterproofness is most important, and we benefit also from its high compressive strength, incombustibility and resistance to rot and vermin."

Pittsburgh Corning Corp., Dept. T-33
Pittsburgh 22, Pa.

Please send me free sample and booklets on use of FOAMGLAS for:

- ☐ Refrigerated Structures
- ☐ Piping and Equipment
- ☐ Normal Temperature Buildings

☐ Have engineer call to help with specific problem.
☐ Advise nearest source of supply.

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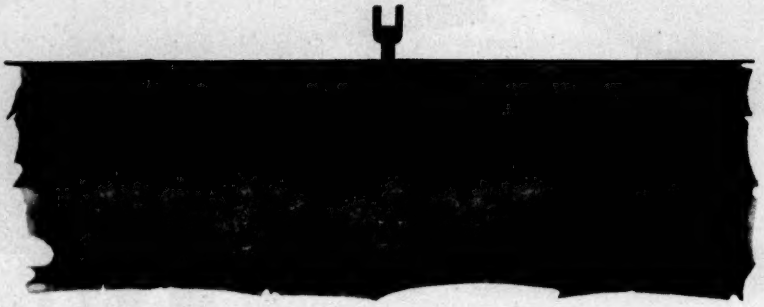

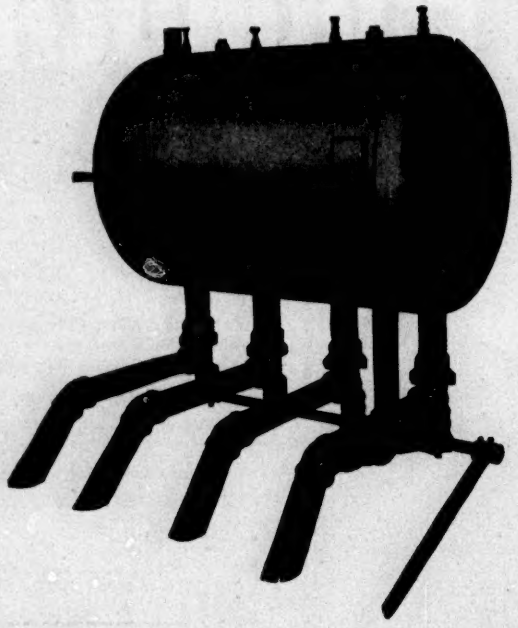

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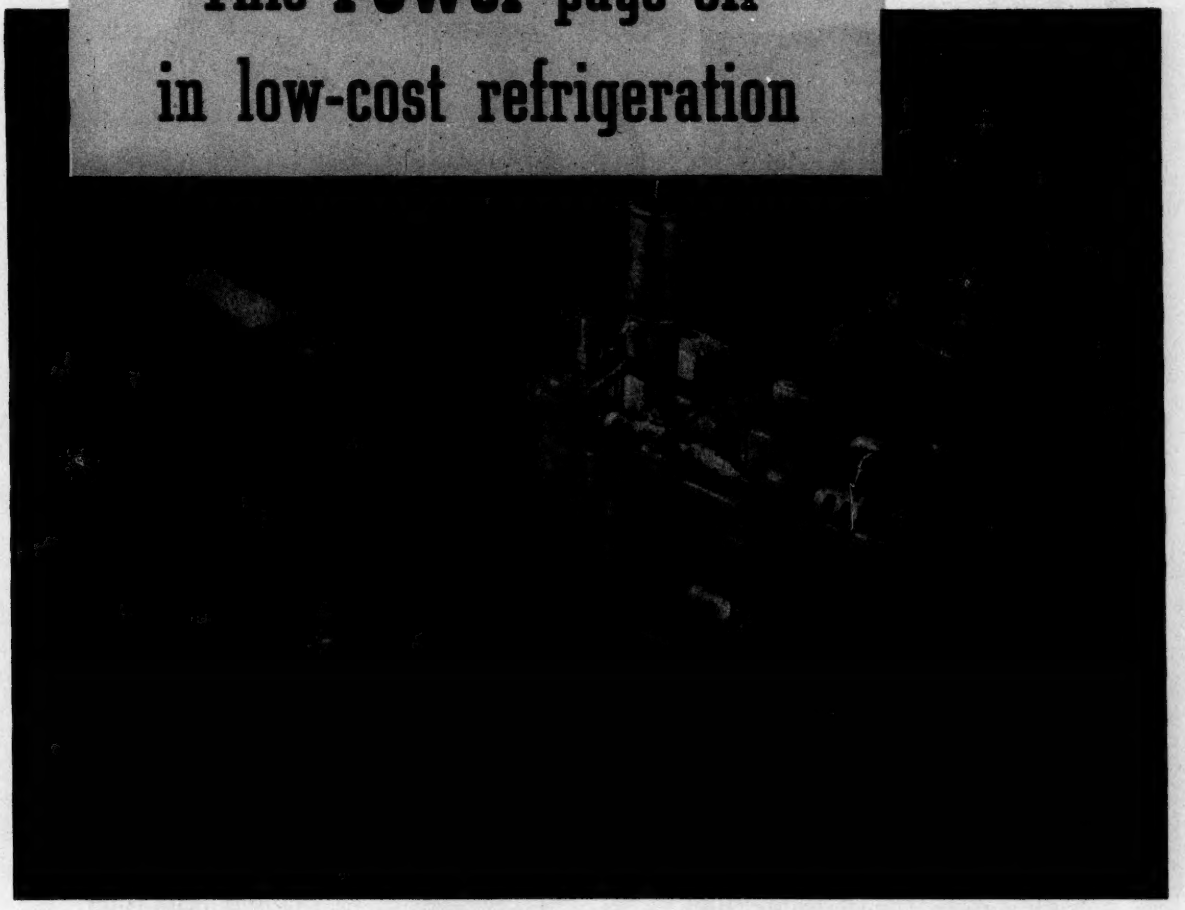

Three Caterpillar Diesel Engines provide the Neosho Ice Co., Neosho, Missouri, with the steady, low-cost power necessary for profitable operation. A D8800 drives an 8″ x 8″ Frick refrigeration compressor for an output of 43.6 tons per day. With two other Cat Diesels, a D11000 and a D4400, the plant has a capacity of 60 tons of ice daily, has 216,000 cu. ft. of cold storage and one 15,000-ton ice storage room. The engines work 24 hours a day, every day in the week, six months a year. Products are block and crushed ice.

Owner R. A. Haas changed over to Caterpillar Diesels because he figured they'd save almost $3,500 per year for him. They're engineered to cut power costs. They burn low-cost No. 2 furnace fuel without fouling, and they need very little attention or service. In fact, in 4,320 hours of operation, the D8800 required no repairs whatsoever. That's not surprising. These sturdy yellow engines are built to work day-in and day-out with a minimum of down-time. If you have to call for service, your Caterpillar Dealer is on the spot fast.

Any way you look at them, Cat Diesels are a sound investment. And they're worth a good look. They've cut power costs for others—they can for you. Let your Caterpillar Dealer show you how. You'll get facts—not "blue-sky" talk—because he knows his business. Engines are available up to 500 HP—electric sets, up to 315 KW.

CATERPILLAR, PEORIA, ILLINOIS

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PALCO WOOL Insulation...

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PALCO INSULATION WOOL

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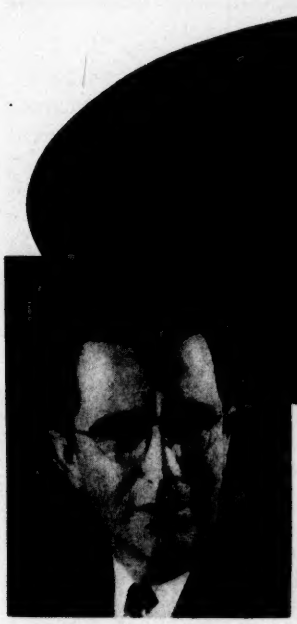


George W. Heath
Manager, Ice Division
Oscar Mayer & Company
Madison, Wisconsin

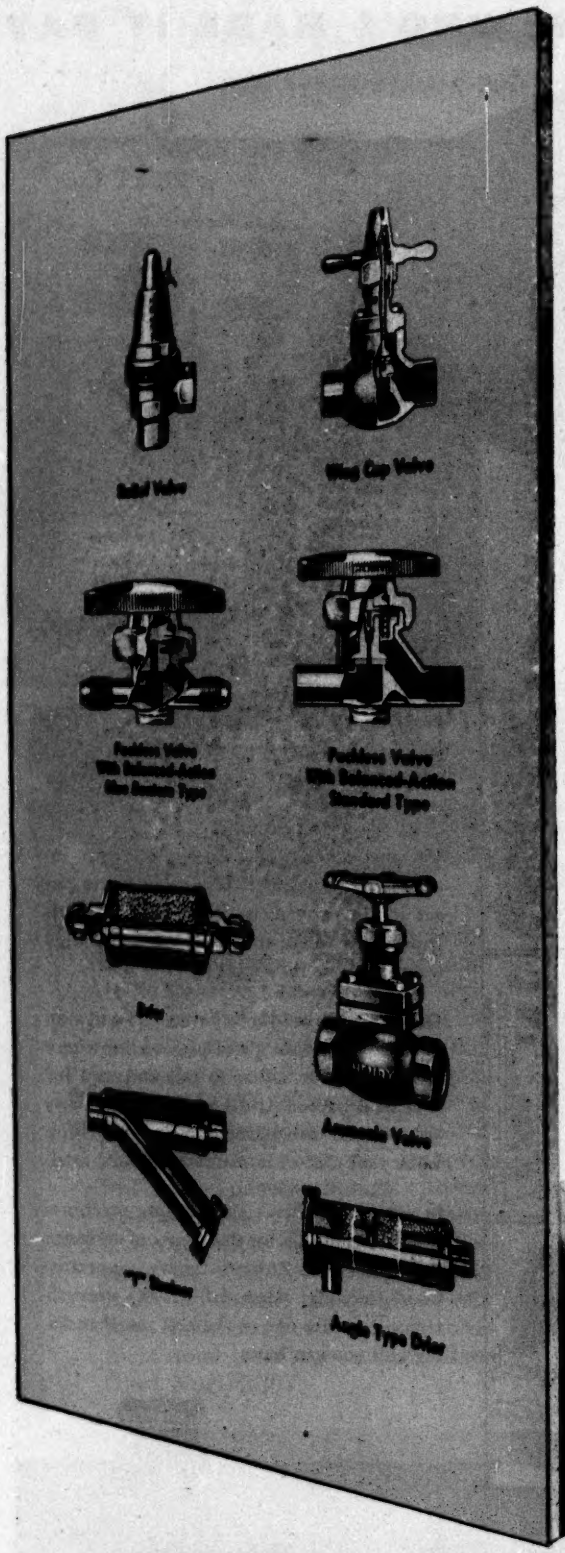
George W. Heath tells you how Oscar Mayer & Company buys its Ice Bags: "First and foremost, we want maximum wet-strength protection. Effective closures are important. Wire for the large bags, tin ties for the smaller ones. We require good printing, top service and competitive pricing. We have purchased all of our Ice Bags from Union for as long as we have sold ice in paper bags."

FAMILIES who have access to automatic vending machines buy processed ice early in the morning, late at night, right around the clock.

VENDING machines are an answer to increased labor and delivery costs. People can get ice in convenient, clean wet strength paper bags where they want it, when they want it, and as they want it.

OPERATORS have found that buyers will stop at vending machines and pick up ice where they would not bother to call and wait for it to be delivered. Units which are properly located and maintained have advertising value that creates immediate impulse sales.

IN ADDITION to block ice, vending machines create heavy traffic for small bags of ice cubes and crushed ice. Proper bags are important. Good-looking, dependable wet-strength Union bags are one of the best merchandising aids you can have.



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MELROSE PARK, ILL. (Chicago Suburb)
CABLE: HEVALCO MELROSE PARK, ILL.

Valves • Driers • Strainers • Control Devices and Accessories for Refrigeration, Air Conditioning and Industrial Applications

In the Spotlight

THE NEW ICE manufacturing plant of Pacific Fruit Express at Laramie, Wyoming was completed and placed in operation about a year ago. It has production capacity of 400 tons daily and during the year serviced 76,000 refrigerator cars. For pictures and description see article starting on page 13.

IN THE KROGER Candy plant moisture condensation on cold metal slabs in contact with continuous conveyor belts caused frequent shutdowns and delayed production until air conditioning was installed. For results of this improvement, see pictures and story starting on page 17.

THE FACT FINDING conference of the Institute of American Poultry Industries will offer a full program of production and marketing information at the annual meeting to be held in Kansas City, Mo. February 14 to 17. See page 16.

A NEW ICE CREAM plant is in operation in Pittsburgh, utilizing the latest principle of straight line production which is expected to speed up operations and materially reduce costs of production. For description and pictures of this new plant, see page 19.

A NEW PRECOOLER and storage plant for the storage of grapes has been completed in Exeter, Calif. for the Fremont Fruit Association at a cost of nearly $50,000. For picture and description of this new plant, see page 22.

ADDITIONAL REPORTS from refrigerated warehousemen and ice producers show similar trends of business in 1952 and prospects for 1953 to those published in the January issue. See pages 23 and 31.

COVER PICTURE: Back of the compressors is the switchboard by which the huge ice manufacturing plant of Pacific Fruit Express, Laramie, Wyoming is controlled. This plant, completed and placed in operation about a year ago, cost a million dollars and during the first year serviced 76,000 refrigerator cars. For complete description see article starting on page 13.

THE NEEDS OF FROZEN food distribtuors for refrigerated warehouse space, and how warehousemen can meet this need was outlined at a recent meeting of the North Atlantic Chapter of the National Association of Refrigerated Warehouses. See report on page 27.

A SURVEY of wages paid by the Canadian ice industry has been made by the Canadian Association of Ice Industries. The results are published in the article on page 36.

AN OUTSTANDING success in the utilization of ice vending stations has been made in the city of St. Louis where The City Products Corp. operates 70 stations and expects to add more. The complete story of this operation is told in the article starting on page 33.

AN ADEQUATE air conditioning system requires certain specific features if it is to function successfully. This paper by a licensed professional engineer read at the recent NAPRE convention is published on page 42.

A NEW ORLEANS hotel will install complete air conditioning which will provide an additional 600 tons of refrigeration for new addition which will have more than 200 rooms.

60 Years Ago

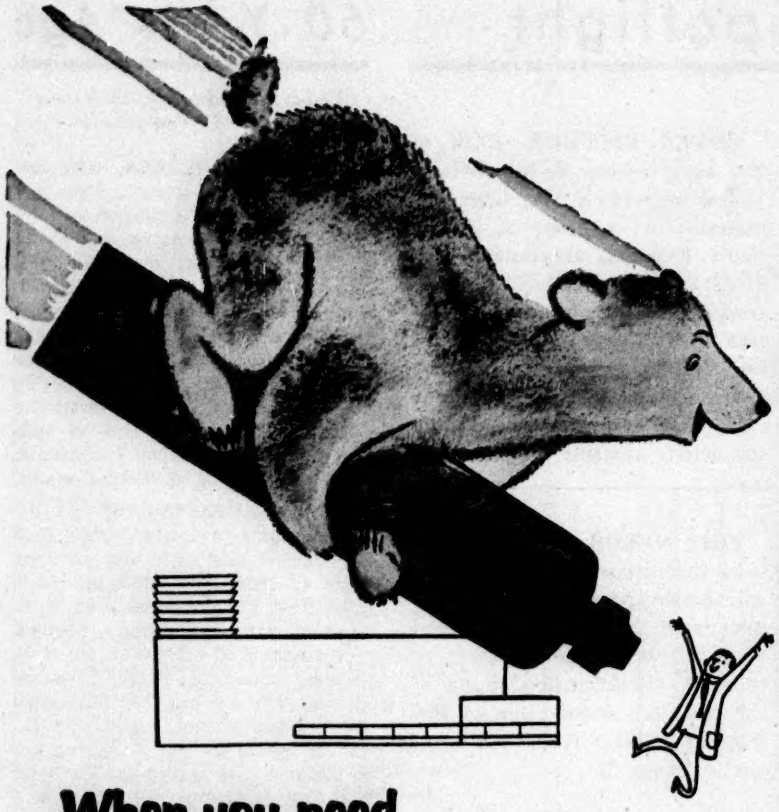
From the February, 1893 issue of ICE AND REFRIGERATION

EVERY ICE DEALER, with few exceptions in St. Joseph, Mo., is a member of the Consolidated Ice Company which was organized last summer to regulate prices and control the ice trade of St. Joseph. The average daily consumption during the summer months is sixty tons, and the Consolidated Company controlled the entire trade last summer by taking the entire output of the Artesian Ice Company, which is about 30 tons daily, or almost one-half the average daily consumption of the entire city.

ICE MANUFACTURERS in the neighborhood of Canton, Ohio, held an informal meeting in that city January 6, 1893. The following were present: J. F. Kunkler, Dayton; E. E. Warner and R. Montgomery, Youngstown; August Blessman, Akron; H. F. Erhard, Massilon; Robert Tonner, Canton. The meeting was not called for organizing, but merely to exchange views on manufacturing ice. A banquet was served at the hotel and the gentlemen sat down and talked over matters for about two hours. Many excellent improvements and changes in the work were suggested and information of much value was gleaned from the remarks of experienced men in the trade. ICE AND REFRIGERATION commends such meetings as an example of local associations being more useful than state or national associations.

THE ICE MACHINE MAKERS appear to be busy on new work and enlargements, though the record this month was not quite so large as usual. Notwithstanding the fear of overproduction in the South a couple of years ago, and a consequent fear of investments in that region in ice factories, the year 1892 saw nearly as many factories erected as in 1889, the number being sixty-eight for 1892 as against seventy-four in 1891.

IN SPITE OF an appreciable scarcity of hogs during the past year which has reduced the grand total packed in the United States for 1892, the packing business as a whole was very good for the year. The science of refrigeration which has been so potent in developing the packing industry in past years, has rendered the business a continuous one at all seasons, and besides has made possible economies which have resulted in a number of new industries, chief in a number of new industries.



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St. Louis, Mo.....Main 3600
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New York City, N. Y..Longacre 4-5955
Rochester, N. Y.....Locust 3570
Syracuse, N. Y.....76-5391
Yonkers, N. Y.....Y-5-4422-3-4
Charlotte, N. C.....3-5152-3-4
Cleveland, Ohio.....Endicott 1-1160
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Oklahoma City, Okla.....79-2551
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Portland, Ore.....Twinoaks 1151
Philadelphia, Penna....Poplar 5-0100
Pittsburgh, Penna.....Hemlock 1-1200
Pittsburgh Prov. & Packing Co., Penna.....GR 1-2460
Providence, R. I.....EL 1-1400
Chattanooga, Tenn.....6-4725
Knoxville, Tenn.....3-5135-6
Memphis, Tenn.....5-4311
Amarillo, Tex.....6-5246
Corpus Christi, Tex.....6-5246
Dallas, Tex.....Randolph 5901
El Paso, Tex.....3-3621
Fort Worth, Tex.....Market 2101
Harlingen, Tex.....2050
Houston, Tex.....Capitol 1175-5
San Antonio, Tex.....Garfield 5321
Richmond, Va.....3-1876
Roanoke, Va.....7751-2-3
South Norfolk, Va.....66-2441
Seattle, Wash.....Elliot 7180
Spokane, Wash.....Lakeview 1541
Charleston, W. Va.....27-165
Milwaukee, Wisc.....MA 8-6200

AGENTS

Indianapolis, Ind.: A Hoffman Co. State Life Building....Market 8866
Wichita, Kan.: Thompson-Hayward Co. 727 E. Osie St.....5-9606
Nashville, Tenn.: Sanders, Inc. 712 8th Ave., S.....6-7111

A NEW MILLION DOLLAR ICE PLANT

Pacific Fruit Express ice making plant at Laramie, Wyoming has completed first year of operation. Is completely automatic, requiring no attendants during night shifts.

BETWEEN Milady's Refrigerator and the West's verdant fields of vegetables and laden orchards of fruits stands this million dollar Pacific Fruit Express Ice Plant at Laramie, Wyo., which has just completed its first year of operation. During that year 76,000 refrigerator cars, bulging like horns of plenty, stopped long enough to have their supply of ice replenished.

The most remarkable portion of this ice making plant is the huge tank room where water in 3,744 metal cans is turned into 300-pound cakes of ice. Each of the 52 rows of 72 cans is individually covered by sections of flooring, giving the tank room the appearance of a gleaming basketball court. In the picture shown below, an overhead crane lifts a half row of 36 cans for movement down the room to the can dump where the icy contents will be emptied.

Joint Ownership

An illustrated description of this new plant was published in the April (1951) ICE AND REFRIGERATION. In that article it was explained that the Pacific Fruit Express is owned jointly by the Union Pacific and Southern Pacific Railroads. The new project included the installation of refrigeration equipment in existing ice storage houses at Laramie and the erection of a one-story 96-foot by 180-foot reinforced concrete building to house the most modern of ice manufacturing equipment. Newly-designed ice conveying facilities for moving ice from storage rooms to the icing platform were installed.

Before the establishment of this plant natural ice from nearby ponds was used. Now the new plant manufactures sufficient ice for the 70,000 refrigerator cars that halt at Laramie annually for reicing. The plant has permanent storage space for 40,000 tons of ice and daily storage space for 800 tons. Production capacity of the new plant is 400 tons daily. The company's ice requirements during the peak season in August and September exceed 1,000 tons daily.

Use of Natural Ice Passes

Almost 200,000 gallons of water are required daily by the plant during peak summer production. Annually about eighty acre feet of water will be actually converted to ice according to K. V. Plummer, vice-president and general manager. One acre foot is about 1360 tons, thus the annual output of the plant is about 108,800 tons.

Previously, twice every winter for three weeks on each occasion, the Pacific Fruit Express Company has harvested literally millions of pounds of ice from a 20 acre artificial pond at Laramie. The stored ice is used during the warm months for re-icing refrigerator cars loaded with perishables bound from the garden spots of the west to the great food centers of the east. Manufacture of ice at the new plant will mark the passing of one of the largest natural ice harvesting operations in the country.

The pictures on the opposite page show some of the more important operations of this huge plant.

Control Panel

The control panel shown in the cover picture of this issue, manufactured by Square "D" Company, Los Angeles, is 42 ft. long and of the completely enclosed NEMA I type construction. Facing the panel on the left, are five full voltage 2300 volt automatic synchronous motor starters. Next is the main incoming circuit breaker control section for controlling the 2300 volt supply to the plant. The circuit breakers are located in an outside substation and remotely controlled from this panel. The next section with the two meters houses the disconnects leading to the 2300/440/230 volt transformers located in the ventilated section. These transformers supply all light and power to the balance of the board, which contains all the control equipment for the

Exterior view of Pacific Fruit Express Ice Manufacturing Plant at Laramie, Wyoming.

This huge tank room of Pacific Fruit Express Ice Plant has 52 rows of 72 cans each.

ice manufacturing plant, with the exception of a small subpanel at the dump end of the tank room.

Included in the panel are the starters for cooling tower fans, water circulating pumps, exciters, ice tank agitators, air compressors, ice harvesting cranes and machine shop. The small panel next to the recorder is for tank and engine room lighting.

The section containing the recorder houses the automatic starting controls for the compressors. The 24 hour recorder is connected through a selector switch to a resistance bulb thermometer in each ice freezing tank. Whichever tank is to be the controlling one is selected, and its brine temperature is used to control the compressors. The recorder is a pneumatic type controller and actuates a group of air operated sequence switches. These in turn, through time delay relays and selector switches, actuate the starting controls for the compressor.

The motor generators for individual excitation of the synchronous motors are shown in front of the control panel. Three are 5 kw and two are 3 kw at 125 volts DC. When a signal to start a compressor is received from the automatic control section of the board the exciter motor starts first. When the DC voltage reaches its proper value a DC relay closes in the main motor starter panel and energizes the 2300 volt motor windings. At the same time the compressor unloader valves are actuated and compressor oil failure device is by-passed. As soon as the motor reaches proper speed, the DC field is automatically applied, the motor synchronized and unloader valves closed. The lights on the face of each compressor motor starter indicate when the contactor is closed, when the DC voltage is correct, and when the field is applied, so that the operation of each motor may be determined at a glance.

In the third section from the right is a small group of selector switches in the center of the panel. These switches are used to convert any compressor from automatic to manual control or remove it from the control circuit altogether. In the center of this group is a sequence selector switch which enables any one machine to be the first to be started in the sequence to equalize wear on all machines.

Compressors

The compressors consist of three 11 x 10, 4 cylinder, one 11 x 10, 2 cylinder, and one 10 x 10, 2 cylinder. The three 11 x 10, 4 cylinder, and one 11 x 10, 2 cylinder, are used on the ice making load, while the 10 x 10, 2 cylinder is used for liquid cooling and storeroom loads which are carried at a higher suction pressure ordinarily than the ice making loads. Therefore, in addition, the 10 x 10, 2 cylinder machine has a control circuit actuated by the conditions of the storage and liquid cooling load and may be operated automatically independent of the balance of the machines.

Since all motor starters are located centrally in the panel board each remote motor, such as cooling tower fans, has a lockout stop button. In addition to the controls described above there are interlocks between various components in this panel. For instance, should the circulating pumps or cooling tower fans fail, the compressors would stop and suitable alarms sounded.

Gauge Panel

The gauge panel shown in Fig. 5 is only a portion of the instrumentation for this plant. This is in a small room to one side of the compressor room and on the walls not shown are the recorders for all temperatures and pressures required for record purpose. From this room the entire electric panel and engine room are visible. The temperature indicator in lower left of the picture has a selector switch (which cannot be seen) which reads the temperature at 28 different points throughout the plant and storage rooms. This instrument is used for spot checking the conditions throughout the plant.

The flow meter at the lower right of the board is for the water circulating over the condensers. The temperature recorder above it is a 7 day outside air temperature recorder. The 2 pen recorder to the left of the clock records can filler pressures, gives a record of the number of pulls made from each ice tank. The pressure gauges at the top read the main ice tank suction, storage suction and discharge header pressures. At the top of this board the two small red lights are part of the alarm system. The opening at bottom center, behind Mr. Whitlock's head, is for a plant intercommunication system which is now being installed which will enable the engineer to communicate with the ice tank, daily and winter storage rooms.

Automatic Operation

This plant operates completely automatically with no one in attendance during the night shifts. There is a day maintenance man who checks oil levels, bearings, etc, and adjusts controls as required. The ice puller is the only man actually in the plant most of the time and during light production, when ice is pulled only one or two shifts, there is no one in attendance for as long as 16 hours per day.

Pictures of Operations in New Laramie Ice Plant of Pacific Fruit Express

(Union Pacific Railroad Photos)

1—Looking down the tank room, the 36 cans are in position to be relieved of their cakes of ice.

2—The cans are turned on their sides and 36 cakes of ice slide out onto a conveyor which will carry them to storage. The plant produces 420 tons of ice daily.

3—Down a decline chain from the tank room go the cakes of ice into the daily storage room. Off the daily storage are 10 winter storage rooms with a total capacity of 40,000 tons.

4—After the cans in the tank room have been emptied, they are righted and refilled with water, as above, moved back and dropped below the surface of the floor for refreezing.

5—Seated at his office in the ice plant is Homer Whitlock, plant manager. Behind him is a portion of the recording panel which discloses operating data at a glance. The plant is located adjacent to the icing platform at which two trains of 85 refrigerator cars each can be re-iced simultaneously.

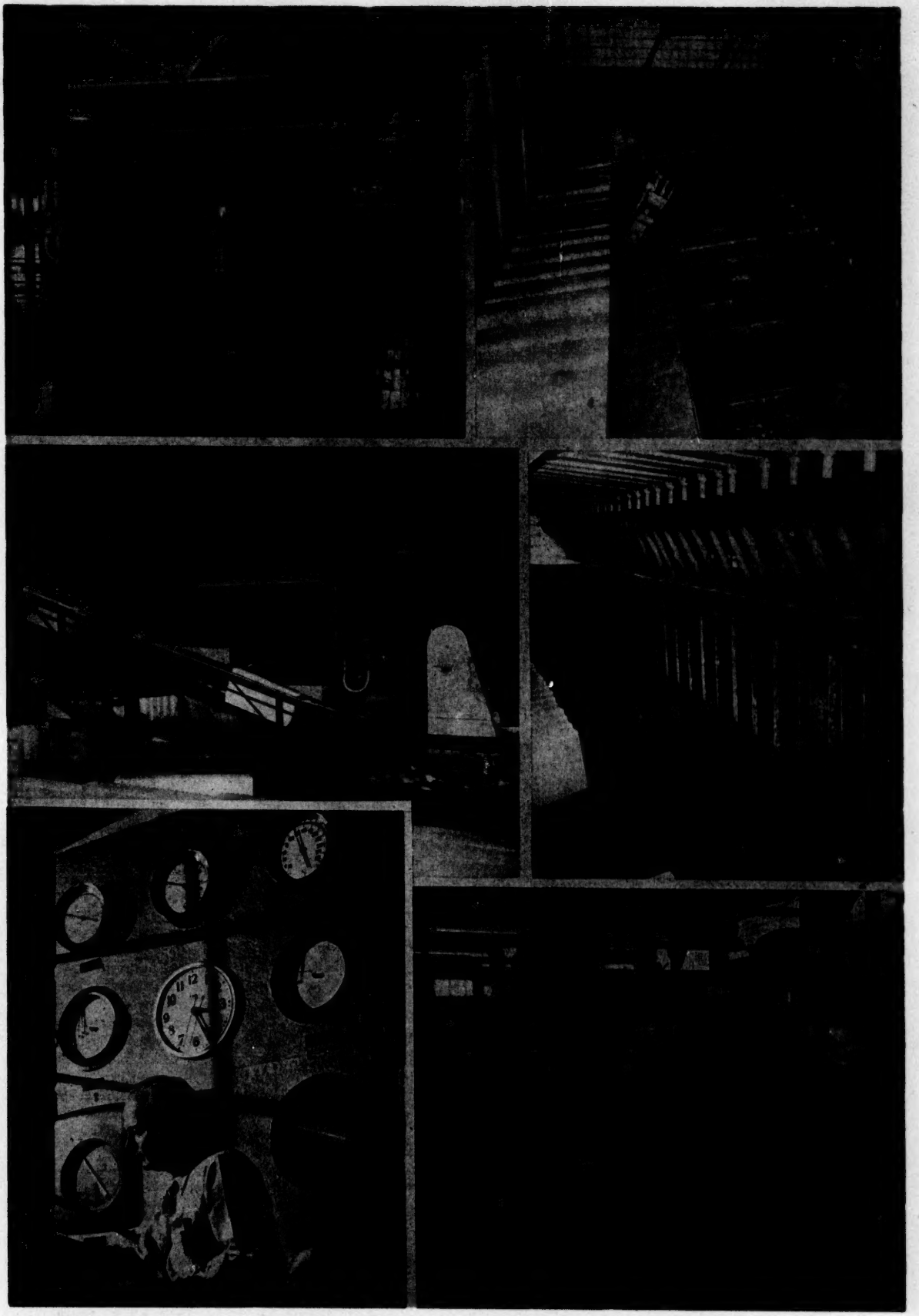
6—These are the Laramie Ice Plant's five ammonia compressors. The two nearest the camera are two cylinders each, the rear three are four cylinders each.

Complete provisions are made for recycling during voltage dips or complete power failures. All equipment is protected by safety shut-off devices which will shut down the machine and sound an alarm.

To assure uniform ice harvesting the cranes are energized only during timed cycles as controlled by preset interval timing apparatus. This provides steady production and helps the automatic controls function satisfactorily. The cranes are 9-ton capacity and have centralized lubrication systems.

An overhead crane above the control panel is shown in the cover picture. There is another similar crane over the compressor section so that all points in the engine room are accessible by overhead crane.

There is no overhead ammonia piping in the engine room. Piping to and from the compressor is carried horizontally until it clears the crane runway from which point it leads to a valve gallery running the full length of the compressor room. All main ammonia valves for the plant are in this



gallery, including compressor suction and discharge, storage and ice tank suction, hot gas, pump out, and purge. Provisions have been made for isolating or bypassing, pumping out and repairing any individual piece of equipment without affecting the balance of the system.

This plant has a nominal capacity of 400 gross tons of ice daily. The usual daily production is 420 tons of 315 lb. blocks at brine temperature of 13 F with 1 degree or less temperature difference between brine and ammonia evaporating.

The three 11 x 10 compressors are driven at 360 rpm by 300 hp Fairbanks-Morse Unity Power Factor Motors. The 11 x 10, 2 cylinder machine is driven by a 150 hp and the 10 x 10, 2 cylinder by a 125 hp motor of the same type. The compressors are Frick vertical single acting, with 50 percent by-pass capacity reduction on each cylinder.

Each compressor is protected against excessive cylinder temperature, high outboard bearing temperature, oil pressure failure, high discharge pressure, cooling water failure, and cylinder lubricator failure.

The mechanical portion of the plant was planned and installed under the supervision of R. F. McKee, mechanical engineer for Pacific Fruit Express. The Associated Refrigerating Engineers, Los Angeles, was the mechanical contractor. Leroy Etzel is superintendent of refrigeration, and E. F. Gaebler is chief engineer for P.F.E. Homer Whitlock is plant manager of the new Laramie plant.

Fact Finding Conference to Offer Full Program on Marketing and Production

WITH 1953 looming up as a year when keen competition promises to make quality and efficiency a must for people in the poultry and egg business — the production and marketing information to be presented at the Institute of American Poultry Industries' 24th Fact Finding Conference in Kansas City February 14th to 17th will have even more practical value to poultry and egg operators than usual, according to Cliff D. Carpenter, president of the Institute.

Registration and exhibits will open in the Municipal Auditorium at 10 o'clock Saturday morning, February 14. At 1:30 Sunday afternoon, February 15, the Conference program will open with an Opportunity Workshop, chairmanned by Chester B. Franz, chairman of the Institute board of directors. Dr. B. T. Shaw, research administrator for the U. S. Department of Agriculture, will lead off by lining up the opportunities for expanding poultry and egg production and consumption—and showing how research fits into this picture. Roy A. Foulke, vice president of Dun & Bradstreet, Inc., follows with a factual account of why businesses fail and what could have saved them. Clyde C. Edmonds, Utah Poultry and Farmers Cooperative, comes next with a discussion of the most productive buying and selling policies for firms interested in building a good future.

The next speaker, Joseph O. Parker, Washington counsel for the Institute, will explain how much poultry and egg legislation has to do with industry's future, and how important it is for industry to choose the right course of action in this field. L. B. Kropp of Swift and Company and Professor E. L. Dakan of Ohio State University will bring the Sunday afternoon program to a close with a panel presentation on what industry and colleges need to do to attract more agriculture students to the poultry and egg world.

Merchandising Workshop

The Merchandising Workshop Monday morning, chairmanned by Eugene Brown, opens with a summary of the American Weekly's recent survey, "Mrs. Housewife Looks At Chicken," by Jack Gallagher. The second speaker, Carl J. Weber of the A. C. Nielsen Company, shows how market research can be used to keep merchandising programs on the beam, using a recent study of canned poultry sales as a specific example or case history. The next two speakers, George Jansen of Jansen Packages, Inc., and Dr. George F. Stewart of the University of California, will outline the advantages and disadvantages of various packaging materials and methods and the consumer-reaction angles that must be considered in building and utilizing packages with maximum acceptance. Following this N. L. Chaplicki of National Tea Company, Charles Frank of L. Frank and Company, and Harold Williams of Fox DeLuxe Foods, will present a 3-way panel on fundamental distribution needs as seen by the retailer, distributor and processor. Roy C. Ritter, of A-Q Poultry Farms, will tell how he developed and established a brand name with the aid of advertising, promotion and retail store service. Winding up, George R. Vail of the Birds-Eye Division of General Foods Corporation, will describe the proper uses and best methods for special poultry promotions.

Monday afternoon M. E. Bowlby of Standard Brands will chairman the Egg Processing Workshop. The first speaker, Dr. L. A. Wilhelm of Purdue University, will report the results of recent research on the relationship between candled grade of shell eggs and their cooking performance in the housewife's kitchen. Three other presentations scheduled for Monday afternoon will cover production and marketing methods that make a shell egg operation profitable, by Hobart Creighton of Creighton Brothers; the opportunities for merchandising more eggs in dry form to food manufacturers, by C. B. Hartman of Henningsen Brothers, Inc.; and how to use improved processing techniques to turn out egg products that taste better and last longer, by Benjamin R. Harris, The Emulsol Corporation.

The annual banquet will be held Monday evening in the Muehlebach Hotel's new ballroom. Special banquet chickens will be furnished by the Seymour Packing Company and prepared from a special Muehlebach recipe. The turkey wishbone contest, featuring industry's self-help program, and the Institute's first award for outstanding industry service by a poultry or egg businessman, will be two of the banquet program features.

Poultry Processing

Ray E. Firestone, Firestone and Company, will chairman the Poultry Processing Workshop Tuesday morning, where six speakers will discuss the most important things to know about the Quartermaster Corps' tests on sub-scalding, packaging and storing; how much good plant sanitation is worth; how to keep waste disposal costs down; using modern product and materials handling methods to best advantage; making inplant chlorination pay off in lower clean-up costs and longer shelf-life; processing cost figures gathered by OPS during 1952. These presentations will be made by Robert Graf of the Quartermaster Food and Container Institute, Dr. W. L. Mallman of Michigan State College, A. J. Steffen of Wilson and Company, John A. Palmer of Barker Poultry Equipment Co., Dr. Wayne

(Continued on page 52)

AIR CONDITIONING CANDY PLANT

Moisture condensation or "sweating" in enrobing room of Kroger candy manufacturing plant is eliminated, and increased production results from installation of air conditioning.

RALPH G. FLOHR
Plant Engineer
The Kroger Co., Cincinnati, Ohio

MOISTURE condensation on cold metal alloy slabs in contact with continuous cloth conveyor belts was causing the Kroger Company's candy manufacturing plant production troubles. Caramel or cream candy centers, coated with chocolate on their bottom-side only, ride on these belts for two purposes: primarily, to cool and set the warm, sirupy chocolate coating; secondarily, to allow for removal of excess starch powder from their exteriors.

Moisture condensation on cold metal slabs in contact with continuous conveyor belts caused frequent shutdowns of Kroger's candy enrobing line. Chemical dehumidifier, using sub-freezing refrigerant in cooling coils now supplies low dewpoint air to room to eliminate source of trouble; air conditioning equipment has never been shut down for defrosting in three years of operation.

View of enrobing room in Kroger candy plant, picturing two of three lines. Inclined chute, vibratory feeder, bottomer, and bottomer cooling belt are shown. Recirculated air outlets are in rear, draftless grilles overhead.

The conveyor belts are driven lengthwise around cooling slabs, riding in direct contact with the topside of the slabs. The cooling slabs, essentially, are 20-ft. long, metal alloy, table-top affairs. Directly adjacent to the underside of the slabs are conventional cooling coils, containing Freon-12. These coils, through which the refrigerant is passed, chill the metal alloy slabs; the cold slabs in turn cool and set the candy center or nut chocolate-covered bottoms.

This portion of Kroger's candy processing operation occurs in the enrobing room. Here candy centers or nuts are completely enrobed with chocolate (see Fig. 1) and passed into 100-ft. long cooling tunnels for setting (Fig. 2).

In the past, this totally-enclosed room was not air conditioned. Moisture condensation, or 'sweating,' resulted from the contact of warm, humid air with the cold slab. Since the temperature of the cold slab was lower than the dewpoint of the air, 'sweating' of the slab occurred due to moisture condensing from the air onto the surface.

This was the problem faced by Kroger. The cloth conveyor belt, in contact with the "sweating" slab, became damp. The moistened belt expanded across its width and drove erratically. When the belt began to drive crookedly, production ceased. In addition, chocolate bottoms did not set properly and tended to stick to the belt, starch dust gummed on the belt, and the entire dusting operation became difficult to administer with any efficient results.

New Equipment Increases Capacity

It was apparent that, to prevent this condensation, the enrobing room must be air-conditioned so as to maintain the dewpoint of the room air at a level below the cooling slab surface temperature. Since this step in alteration of the room was deemed necessary, Kroger believed that the entire candy enrobing operation herein should be scrutinized to obtain more efficient methods and equipment. Ultimately, these thoughts led to a complete redesign of the space, scrapping old equipment for new, air conditioning the room, and designing a new belt drive.

To Kroger, this modernization program has resulted in the elimination of one of four enrobing lines, allowing for a sustained production requiring but 75 percent of the equipment and labor previously employed. Increased capacity of each of the three enrobing lines is now 2000 lb/hr of candy centers.

The air conditioning equipment, a 2500 cfm air capacity Kathabar unit shown in Fig. 3, maintains the room at an 80 F temperature and 31 F dewpoint (17 percent relative humidity). Now the moisture content of the air is sufficiently low so as to prevent "sweating" by the cooling slab. Actually, this dewpoint is lower than the temperature of the Freon-12 circulated in the slab cooling coils.

Virtually eliminated has been any maintenance whatsoever to the con-

Fig. 1—Candy centers traveling on wire belt conveyor through a curtain of enrobing chocolate in Kroger candy plant. The cold cloth conveyor belt is in foreground of the picture.

Fig. 2—Enrobed candy passing from under automatic decorating device and into cooling tunnel, upper portion of picture. Operators separate any candies which may tend to cling to one another.

veyor belt and the slab, what with the air conditioning and the new belt drive. Net results of all changes are the establishment of quality control over each step in the enrobing operation and a uniform product. Production shutdowns due to equipment failure are practically nonexistent.

A schematic diagram of the steps in the enrobing operations is presented in Fig. 4. The candy centers, which have been properly conditioned, are dumped from trays onto an inclined chute, gravity feeding to a vibratory feeder conveyor which aligns and spaces the pieces for the subsequent operations. Passing onto a short continuous wire mesh conveyor, the candy is coated with chocolate on its underside by chocolate covered rollers located immediately beneath the conveyor. This mechanism is termed the "bottomer."

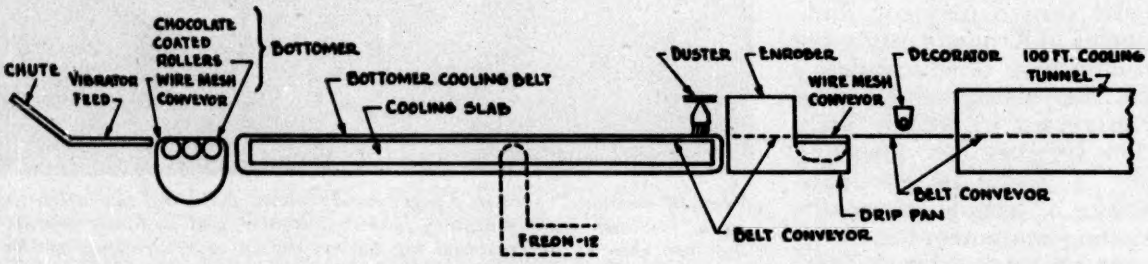


Fig. 4—Schematic diagram of one of three identical Kroger enrobing lines. "Sweating" of bottomer cooling belt slab used to cause production shutdowns.

Fig. 3—The 2500 cfm air capacity Kathabar dehumidifier which has never been shutdown for defrosting in its 3-year life, even though brine refrigerant is passed through its coils. Brine lines are shown at right.

It is at this point that the candy centers are passed onto the cloth belt conveyor for dusting and setting, illustrated in the first picture. After a final automatic dusting, the centers travel onto another wire belt conveyor to pass under a curtain of liquid chocolate for their complete enrobing. Approximately 400 lb/hr per line of 90 F chocolate is used under maximum operating conditions. The wire belt allows the excess chocolate to drip from the candy into a reclaiming tank. Automatically, a decorative design is placed on the now-enrobed center tops, and another continuous conveyor takes the pieces through a 100-ft. long cooling tunnel for cooling and setting the chocolate.

Automatic Defrosting

A unique feature is involved in the operation of the air conditioning equip-

(Continued on page 52)

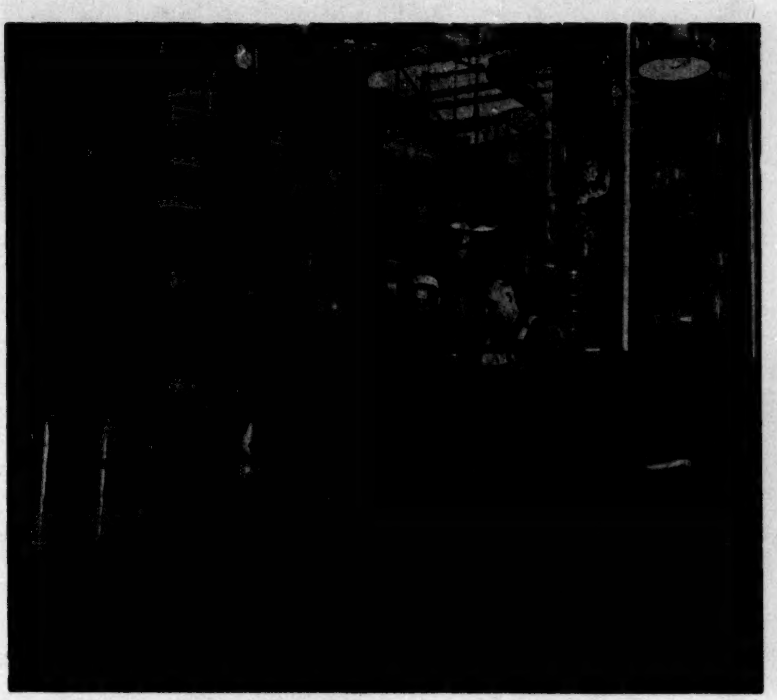
New Plant Produces Quality Ice Cream

Modern improvements and up-to-date machinery and refrigerating equipment installed in this new plant, utilizing latest principles of straight line production.

WHEN Sealtest officially opens its new Pittsburgh ice cream plant early in January, visitors will see the latest improvements in the art of ice cream making in a modern plant that makes use of the principles of straight line production. The new plant, which has a capacity of 4,000,000 gallons per year, is situated on Browns Hill Road in Pittsburgh's East End, overlooking the Monongahela River.

Its ice cream production will replace, and will be considerably larger than that at the combination milk and ice cream plant at Forbes and Stevenson Streets in Pittsburgh's downtown area. After conversion, the original plant will be devoted entirely to milk processing. It will continue to be headedquarters for milk processing and sales, as well as to house the main office of Rieck-McJunkin Dairy Company, operating subsidiary for National Dairy Products Corporation in western and central Pennsylvania.

The new plant's architect was William C. Stohldrier, of White Plains, New York. Mr. Stohldrier has long been a noted specialist in dairy plant design, and has been architect for a large number of such plants throughout the nation. The engineers were Krey and Hunt, of New York City, a firm which has handled engineering for a large number of new dairy plants. The general contractor was Crump, Inc. of Pittsburgh.



One of ten ammonia compressors (left) awaits connection to its 75 hp motor in the new Sealtest ice cream plant. These compressors are rated at 70 tons at zero pounds back pressure.

Production on One Floor

The design provides for all stages of ice cream production to be completed on the one, main floor level. The building, which is of red brick and limestone, covers approximately 52,000 square feet, and is 254 feet long and 217 feet wide. It is situated on a 7½ acre site.

Operational and sales offices are located in a partial second-floor. Compressors for refrigerators and air conditioning, boilers, pumps, and other mechanical equipment are located in the basement.

A garage with space for 40 trucks and four trailer transports is provided in a separate building on the plant grounds.

The plant's largest area is the hardening room, approximately 90 by 140 feet in size. This room will hold 125,000 gallons of ice cream, which will be one week's production in the summer's peak period. A constant temperature of minus 20 F will be maintained here. Eight blowers, each of 15 hp capacity, change the air in the room almost three times per minute. Air is distributed through 96 air diffusers, each five feet in diameter.

The hardening room's walls, ceiling and floor are enclosed in a complete "envelope" of cork insulation eight inches thick and 30,000 square feet in area. The structural concrete floor, on which the insulated floor rests, is ventilated beneath to prevent freezing.

Roof Structure Enclosed

The roof structure, of steel and concrete, is enclosed within the cork envelope. This unusual design is now being widely adopted because it prevents thermal leaks, common in structures in which the insulation "envelope" was broken to permit passage through of structural steel roof supports.

Finished products are carried into the hardening room by four conveyor lines, one each for bulk ice cream, packaged ice cream, frozen novelties, and miscellaneous frozen products. Three other conveyor lines carry hardened ice cream out of the other end of the room directly into refrigerated delivery trucks.

Each of the three kinds of materials brought to the plant, dairy products, flavoring ingredients, and packing materials, has its own delivery platform and storage facilities in the plant.

Trucks bringing dairy products enter a special drive-through delivery room which can accommodate the largest tank trailers. Both entrance and exit doors in the drive-through delivery room are closed, except when a truck is entering or leaving, in order to maintain the most sanitary conditions possible. In this room, tank trucks with sanitary stainless

Five-foot air diffusers mounted on ceiling of hardening room in the new Sealtest ice cream plant. The hardening room, 90 by 140 feet, is the largest area in the new plant and will hold 125,000 gallons of ice cream, one week's production at peak demand in summer. Temperature in the room will be held at a constant 20 degrees below zero, maintained by the current of refrigerated air pouring from the room's 96 big diffusers. Air in the room will change almost three times per minute when the room is empty, and oftener as it becomes fuller.

steel valves are connected to sanitary stainless steel lines, so that their contents are pumped directly, without contact with air, into one of the five refrigerated raw-product stainless steel storage tanks inside the building. Each storage tank has a capacity of 3,000 gallons. Constant temperature of these tanks will be 34 degrees.

Most cream is brought to the plant in standard 10-gallon cans. Each can's contents is tested for fat and quality. Those cans whose contents meet standards are then put onto a conveyor which carries them over an automatic scale that records their weight. Cans are then emptied into a stainless steel receiving tank from which cream is pumped to a stainless steel storage tank inside the building.

For flavors, an entirely separate receiving system is provided, including a loading platform at which packages and cans are taken off trucks and moved inside to appropriate rooms. The ingredients, mostly fruits, arrive frozen and are stored in a separate refrigerated room, 2400 square feet in area, which has a constant temperature of zero. Another room, 1600 square feet in area, has storage facilities for nuts and certain flavors that require a constant temperature of 40 degrees.

The plant's third materials-handling system provides for unloading and storage of cartons, packaging materials, and dry sugar in bags, used for sweetening fruits or purees. This system includes a loading platform and two storage rooms which have a total floor area of 13,000 square feet. Electric fork trucks handle movement of materials on pallets in these rooms.

Liquid sugar will be used as an ice cream sweetener in this plant. It will be received in tank trucks which will be emptied through the same stainless steel pipe connections used for transferring milk and cream. Three tanks, each of 3,000 gallon capacity, are provided to hold the liquid sugar until it is needed, when it will be pumped directly into the mixing vats.

Laboratory

The "heart" of the plant's processing facilities is a completely-equipped laboratory where quality of all ingredients is determined when they enter the plant and before they are used. Here, too, tests are made of the products at each stage of processing, from start to finish. Like all other rooms of the plant in which processing is carried out, the laboratory is air conditioned, with walls of smooth, waterproof tile. It measures 17 by 28 feet.

Exterior of two 15-hp blowers, part of a battery of eight used to refrigerate the hardening room in new Sealtest ice cream plant.

Rear of cold-wall raw dairy product storage tanks showing ammonia pipeline connections in the new Sealtest ice cream plant.

Production Room

All ice cream processing takes place in one big room with a total area of 10,000 square feet. The rows of stainless steel equipment and the cream-colored tile walls make this area the most impressive in the plant.

Projecting through the tile wall on one side of the room are the large, polished stainless steel bulkheads of 13 storage tanks. Down the center of the room is a line of 13 freezers. Stainless steel mixing vats and pasteurizing equipment occupy one end of the room while the other end is taken up by a huge brine tank for freezing novelties.

In operation, milk and cream from storage tanks will be pumped into a covered weigh tank. After the correct proportions are obtained the mixture will flow into a covered mixing vat. Then the required amount of liquid sugar will be weighed in the same manner and pumped into the mixing vat. Flavoring ingredients may also be added at this stage. When the ingredients are thoroughly agitated, the mixture will be run through a preheater and into a homogenizer and from there into the high-temperature, short-time, (175F for 25 seconds) pasteurizer.

Pumped Over Cooler

From the pasteurizer it will be pumped first over a cooler, which will again bring the temperature down to 34F. and then into a cold-wall mix storage tank where it will be held at that temperature until needed. In a freezing operation the cool mix will be pumped from a storage tank directly to a freezer where it will be frozen to about 21F. It then goes into bulk paper cans, to a package filling machine, or into one of the novelty processing lines. Three of the freezers have a 400 gallon capacity; five are rated at 200 gallons, and four at 150 gallons. There is also a 40-quart freezer for use in developing new flavors.

Continuous conveyors carry the products from the filling machines directly into the hardening room where they are stacked. After hardening at a temperature of 20 F., the products are loaded, as needed, onto another conveyor line that carries them directly to the door of the refrigerated trucks that will deliver them to Sealtest dealers.

At one end of the production room is a large brine tank fitted with automatic equipment for the production of frozen novelties. This system has a capacity of 1,000 dozen popsicles per hour.

Beneath the processing rooms is the basement area which houses the machinery. Here are controls for the electrical system which has a capacity of about 1,300 kilowatts (about 1,700 hp.). Also in the basement is the compressor room for the plant's refrigeration system, which requires almost 1,200 hp., for chilling dairy products, freezing ice cream, and maintaining low temperatures in storage areas. The machinery for the air conditioning system requires 80 hp. Operation of the movement in the freezers requires 197 hp. The homogenizer requires 40 hp.

New Orleans Hotel Addition To Have Complete Air Conditioning

ON MONDAY, December 15, 1952, the Roosevelt Hotel in New Orleans broke ground for its new addition to be known as the Westminster Building. This addition will be 12 stories high and contain more than 200 rooms which will require an additional 600 tons of refrigeration for air conditioning.

A new centrifugal freon refrigeration machine, including condenser and chiller will be installed. The new unit will be tied in to the three existing centrifugal plants, and chilled water lines will be extended from the existing building to the new cooling units on each floor of the Westminster building.

Like the air conditioning and heating system of the old building, conditioned air will be supplied through ducts to each room by individual branches, each branch controlled by a room thermostat. Air is returned to the fan unit on each floor through louvred doors to the hallway and thence to the fan room. Existing duct work in the Roosevelt is the double type, one for hot and the other for cold air. Each floor has its own cooling coil filters, heater, re-heater and fan.

1900 Tons of Refrigeration

The present 700 rooms, spread over 12 floors, require 1900 tons of refrigeration. It is supplied by three Carrier type M centrifugal units using Freon-11. Chilled water is pumped from the engine room in the subbasement to the cooling coils for each floor.

During the new construction, the Roosevelt will replace all refrigerated storage rooms with 15 new cold boxes, some in the new addition and some in the older building. One of these rooms will be a low temperature room capable of storing one and one-half carloads of frozen food. The existing refrigeration plant is a Frigidaire Freon-12 plant, approximately 75 tons. The new additions will double the tonnage necessary for refrigerators alone.

The Roosevelt has at present 12 tons of ice making capacity in two Vogt Tube-ice machines. Vilter compressors are used in connection with this ice-making plant. Another section is also to be added to the cooling tower on the roof, bringing this facility to a capacity of 7,000 gallons per minute of condensing water passing over the tower.

August Perez and Associates are the architects. The new addition will be located for a half block along Common Street at University Place directly adjacent to the Roosevelt. Mr. Harry Latter is the promoter and developer of the new addition. Mr. Shepard Latter, President, and Mr. Seymour Weiss, Vice-president and Operating Manager, of the Roosevelt will jointly manage the new addition.

Alterations and additions to the cold storage facilities and the refrigeration plant are under the direct supervision of John J. Bryner, chief engineer for the hotel. Mr. Bryner is a past president of NAPRE and a member of its Board of Advisors. In addition to his duties at the Roosevelt, he supervises the engineering plant at the New Orleans hotel, a Roosevelt affiliate.

Food Processors School

OFFERED as a refresher course for men in the food industries, the program of the 32nd annual food processors school, sponsored by the Food Technology Department of Oregon State College, Corvallis, has been announced. The school will be held for one week, starting Monday, February 9.

Answers to the fundamental "whys" of problems which plant men meet every day will be presented in a clear and concise manner. Problems common to canners and freezers will be discussed in down-to-earth terms by Oregon State College faculty members. Simple outlines for each lecture will enable students to make notes for their own use.

One of the features of the school will be a presentation of the American Can Company movie "The Miracle of the Can" showing the advantages of the tin can used for preserving foods.

New Grape Pre-Cooler and Storage Plant Refrigerated With Ice

A GRAPE precooler and 30 car storage plant, 74 feet by 60 feet, has been completel in Exeter, Calif., for the Fremont Fruit Association at a cost estimated between $45,000 and $50,000.

The stucco building consists of one large storage room, two precooling rooms and an insulated hallway with a partially underground bunker running along the front of the building. The bunker top serves as a truck height platform.

the fans. Sulfor dioxide gas is circulated through individual rooms for mold control.

Mr. Botkin pointed out that successful production of top quality grapes from a plant of this type depends upon efficient plant design, the original fruit quality and careful stacking of boxes to promote optimum air circulation.

The addition of the new plant the Fremont Fruit Association increased the number of cold storage buildings

Exterior view of new grape cooler, 30 car storage plant now in operation at Exeter, Calif., by the Fremont Fruit Association. Cool air from block ice bunkers is distributed through the plant by a series of 16 propeller type fans.

Grapes, mainly Emperors plus some early grapes, are processed in an adjacent packing shed and conveyed into the precooler hallways from which they are loaded into either of the precooling rooms by means of hand trucks. Each room can cool three carloads of grapes from field temperatures to 40 F. in 16 hours. Precooled fruit can be loaded directly into railway cars, into refrigerated trucks or into the cold storage room. Market conditions were reported by Owner R. C. Botkin to have been such that grapes seldom are held in storage for longer than one to five months although no deterioration was observed during that period.

Block Ice in Bunkers

The plant is refrigerated by block ice dumped into the bunker. Sixteen propellor type fans located inside the building circulate air through the ice over the fruit and back to the ice. Air temperatures can be reduced to as low as 33 F. in the storage room while humidities hold consistently at 90 to 92 percent, and can be varied further by proper manipulation of

in Exeter to 19 plants and the maximum storage loading of grapes alone amounts to 2,350 carloads, a remarkable total for a town of only 4,300 population.

The new plant was designed and built by Associated Refrigerating Engineers of Los Angeles, Calif.

Lyles New Manager Buffalo Warehouse

THE appointment of Dennis C. Liles as manager of the Merchants Refrigerating Company's Buffalo warehouses, Buffalo, N. Y., has been announced. He will succeed William T. Ferguson who is retiring under the company's retirement plan. The changes were effective January 2.

Mr. Liles, who is now with the New York headquarters of the company, is a former Buffalo resident. Mr. Ferguson has been with Merchants and the Terminal & Transportation Corporation for 25 years, and started with the Terminals & Transportation warehouse as superintendent.

Bandit Releases for Cold Storage Doors

ARMED robbers pulled old trick and locked 18 persons in a refrigerator in a leading St. Louis Super Market during the Christmas shopping rush. In Chicago a similar stunt was used. San Francisco had its counterpart a few days earlier. In other U. S. cities the police reports will show similar statistics.

In only one case recently was the refrigerator of low temperature, but in all the threat of suffocation was present, in addition to exposure and shock. Employees and delivery men from wholesale houses, 18 in all, in the St. Louis episode were herded into a small meat compartment. There they remained for 30 minutes until a bakery concession employee showed up and alertly released the chilled and unhappy occupants.

Releases Available

Refrigerator supply firms, manufacturers, consultants and equipment installers cannot directly discourage armed robberies, but they are in a position to discourage the risky practice of locking up the victims in refrigerators. Most all leading refrigerator door hardware manufacturers have types of fasteners which prevent deliberate locking, or if locked, provide easy and foolproof release of the fasteners from the interior.

Clippings from newspapers and prepared literature showing this malpractice on the part of stick-up artists, are easily prepared and made a part of the sales manual of any enterprising equipment salesman, engineer or contractor. A few words to the customer, backed up by a display or demonstration usually overcomes his objections to the few dollars extra cost per door. "Just good life insurance" could be the sales slogan.

Some states, like New York, prohibit the sale of refrigerator doors, or their installation, without such a state approved device. Others, like California, now require either a release device or an alarm that is easily found and set off in even a darkened room. Other states require a simple, but somewhat doubtful expedient, such as a fire axe.

However, until all proper authorities recognize this hazard and bring about legislation requiring bandit releases or their equivalent, it is the responsibility of the manufacturers, the sales representative, the consultant, and the installation contractor to see that the customer is provided these protection features.

Refrigerated Warehousing Industry

NATIONAL ASSOCIATION of REFRIGERATED WAREHOUSES

Division of American Warehousemen's Association

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THIS MONTH IN BRIEF

Delayed reports from refrigerated warehousemen reflect about the same conditions as were revealed last month; good occupancy, conversion from cooler to freezer space, and an optimistic outlook for next year.

To meet the needs of the frozen food industries, public refrigerated warehousemen must plan new construction and streamline their operations with those needs in mind, according to a representative of the industry. Failure to meet these needs, he says, may result in construction of facilities by frozen food interests.

A full year of industry growth and progress for the refrigerated warehousing industry for 1953 was predicted by A. B. Efroymson, president of the National Association of Refrigerated Warehouses at a conference of industry officials.

Review of Refrigerated Warehousing

A NUMBER of replies were received from refrigerated warehousemen too late to be included in the Review of the Refrigerated Warehousing industry in the January ICE AND REFRIGERATION. Although these do not change materially the conclusions published in the January issue, they are summarized here for their additional information.

Occupancy—New Space

Colorado Springs, Colo.—Our occupancy for 1952 was the same as 1951, but for 1953, we expect an increase of about 16 percent.

Chicago, Ill.—The first 10 months of 1952 showed an occupancy of 83 percent compared to 87.7 percent for the same period of 1951. There were no additions but 8,000 cubic feet was converted from cooler to freezer.

Wichita, Kans.—Our occupancy for 1952 discloses a higher percentage for freezer commodities and a much lower percentage for coolers. We expect this trend to continue in 1953. We converted in 1952 approximately 82,000 cubic feet of cooler space into freezers and our plans are to convert more of our coolers into freezers during the year 1953.

Baltimore, Md.—Our occupancy of 1952 was a little better than 1951 and the turnover was greater while individual lots were smaller in some commodities. As for 1953 no one knows what will happen, yet I feel personally we will have a good full occupancy. We did not add any space to our capacity although we did convert one of our rooms into a fast freezer with blower fans and carry the freezing rooms down to minus 20 or minus 30 degrees.

Boston, Mass.—Our percentage of occupancy was about 20 percent lower than in 1951. A new warehouse was built in Portland, Maine, adding 660,000 cubic feet of cooler and 333,000 cubic feet of freezer space.

Kansas City, Mo.—We had a decrease in occupancy of about ten percent, but expect 1953 to be about the same as 1952. Some space was converted from cooler to freezer.

Omaha, Neb.—Our occupany in 1952, percentagewise, was about the same as 1951, possibly a little more. The total tonnage was a little more due to the fact that we converted some space into freezer space in 1952 which increased our capacity several million pounds. We are now in the process of converting approximately 300,000 cubic ft. of space, which was formerly used for cooler and dry storage, into freezers.

Cincinnati, Ohio—Our 1952 occupancy compared favorably with 1951 and we expect a greater volume in 1953. We installed a vilter blast freezer and converted 200,000 cubic feet of cooler space to freezer space.

Philadelphia, Pa.—Occupancy was up 15 per cent and we expect a further increase in 1953. During the year we added approximately 200,000 cubic feet of freezer space.

Dallas, Texas—We had about a 30 percent increase in occupancy in 1952 and expect a total of 80 percent occupancy in 1953. We built no additional space during 1952, but did convert 250,000 cubic feet of cooler space to freezer space.

Commodities

Colorado Springs, Colo.—Eggs were down 25 percent; butter down 18 percent; apples down six percent; frozen food up 60 percent; frozen poultry up 20 percent.

Chicago, Ill.—Based on the first ten months, chief commodities showed the following changes over 1951: frozen beef down two percent; frozen pork down 30 percent; poultry down 10 percent; frozen eggs down 22 percent; frozen foods up 36 percent; condensed milk down 25 percent; beer up seven percent.

Wichita, Kansas.—The commodities that we store consist primarily of frozen food and meat products.

Baltimore, Md.—We store a general line in the freezer of frozen foods, poultry, meats, eggs, orange concentrate, frozen fish and cold packed fruits, which ran a great deal heavier in all commodities than in 1951. Our cooler space has been crowded for the past three years with glazed fruit, domestic and foreign hops, dried fruits, canned hams, South Carolina peppers, paprika, barrelled pickles, powdered milk and cheese. Of course, this falls off a little in the latter part of the year, but in January it begins to get heavy again. Quite surprising to us, our clients use this cooler space all year in preference to dry storage.

Boston, Mass.—Our chief commodities are meat, poultry, frozen foods and fish. Poultry was lower, fish about the same, meat higher, frozen foods about the same.

Omaha, Neb.—Our main commodities are frozen fruits and vegetables, meat, poultry, butter and frozen eggs, and while during the past year, holdings on butter and frozen eggs were less than in 1951, the tonnage on frozen fruits and vegetables showed an increase which offset the reduced tonnage on other items.

Cincinnati, Ohio—We store mostly frozen foods, fruits, poultry and other

perishables, the volume of which compared favorably with 1951.

Dallas, Texas—We store mostly frozen food and meats and these showed about 25 percent increase in 1952.

Transportation

Colorado Springs, Colo.—About 60 percent of our commodities are shipped by rail and 40 precent by truck.

Chicago, Ill.—Our truck tonnage is about 41 percent and rail 59 percent, based on in and out.

Baltimore, Md.—Most of our commodities in the last year have been brought in by trucks, coming to us in some instances from the States of Washington, Texas and California. Of course, some are brought in by rail, but we find quite a few of these are stop-off cars for destinations other than our city. Our in-transit storage runs about five percent of our volume and is held anywhere from one to six months.

Kansas City, Mo.—About 60 percent by truck and 40 percent by rail.

Cincinnati, Ohio—Sixty percent of the commodities stored in this warehouse arrived by truck and 40 percent by railroad.

Dallas, Texas—By rail, 40 percent. By truck, 60 percent.

Source of Products

Colorado Springs, Colo. — Only about five percent of our storage is in-transit, which is held two to five months.

Chicago, Ill.—About 55 percent of commodities received for storage comes from producing areas, including all meat and poultry. We have no in-transit business.

Wichita, Kans.—We handle considerable fresh meats, approximately 70 percent of which is consumed locally and the balance on an in-transit basis.

Baltimore, Md.—I cannot think of any of our products that do not come from producing areas as our poultry comes from Delaware, Maryland, Tennessee, and the West. Our shrimp comes from Mississippi, Texas and Mexico and our meat, other than local pack, is mostly from the West as Chicago, Sioux City, Omaha and other sections in that district producing cattle and hogs.

Boston, Mass.—About 30 percent of our commodities come from producing areas; about 10 percent is in-transit which is held about four months.

Omaha, Nebr.—By far the larger proportion of the items that we store are stored in-transit, particularly frozen fruits and vegetables which, of course, originate on the west coast. The length of storage on these items, of course, varies considerably. However, we find that our average holdings on frozen fruits and vegetables are about three and a half months. We look forward to an increase in 1953 over our holdings of 1952.

Cincinnati, Ohio — Seventy-five percent of our volume comes from producing areas and 25 percent for storage in-transit.

Dallas, Texas—Sixty percent of our commodities comes from producing areas and 40 percent is storage-in-transit which is held about four months.

Frozen Foods

Chicago, Ill.—Our frozen foods volume was up 36 percent but a decrease is predicted for 1953.

Wichita, Kans.—We are handling approximately twice as much frozen foods as we did during 1951 and all of it is on an in-transit basis. Of course all the Frozen Food comes in by rail and it normally stays in storage about five months.

Baltimore, Md.—We received more frozen foods in 1952 than 1951 and this volume would increase for 1953 if we had the available space.

Boston, Mass.—We did not receive an appreciable volume of frozen foods in 1952 but we expect an increase in 1953.

Kansas City, Mo.—We received a satisfactory volume of frozen foods in 1952 and for 1953 we expect them to hold their own, or possibly show an increase.

Cincinnati, Ohio—We received an appreciable volume of frozen foods in 1952 as compared to 1951, and expect greater volume in 1953.

Dallas, Texas—We received an appreciable volume of frozen foods in 1952 and expect an increase in 1953.

New Commodities

Chicago, Ill.—New commodities include resins and batteries.

Baltimore, Md.—At the present time we do not know of any new developments in the refrigerating business or services that might be useful to others in the business. However, we might add, that anything new or any difficulties encountered are usually discussed by our very friendly competitors in our city and we usually have the advantage of their experiences to satisfy our individual customers or to economize the conducting of our business.

Dallas, Texas—New commodities include onion storage.

Costs

Colorado Springs, Colo. — Costs were not in line with income.

Chicago, Ill. — Storage expenses were consistent with volume. Handling expenses were up 16 percent with revenue about the same as 1951. Administration costs were up 11 percent.

Wichita, Kans. — Our costs increased in comparison to income over 1951 and if this city maintains its high employment in 1953 it no doubt will increase more, unless relief is provided through increased storage rates.

Baltimore, Md.—Costs were more or less in line with last year as compared to income although when you weigh the whole matter you might say that costs were much above those of the past year.

Boston, Mass.—Costs are rising and rates are fixed.

Kansas City, Mo.—Costs were not in line with income, due to increased costs for labor, electricity, water and materials; and the fact that rates were frozen.

Cincinnati, Ohio—Our payroll was higher in 1952 than in previous years.

Dallas, Tex.—Costs were up about 20 percent.

Industry Problems

Colorado Springs, Colo.—Our most outstanding problems during 1952 was increased costs.

Chicago, Ill.—Our most important problems were handling costs (labor), government regulations, and distribution.

Wichita, Kans.—Our biggest problem during 1952 was our labor. Because of the high production of airplane factories in this city, we and most of the other industries suffered by being able to hire only what these plants did not want and they would stay all the way from an hour to a few days.

Baltimore, Md.—Our most outstanding problem during 1952 was the unfortunate fact that we could not accommodate our customers with all the space they desired in our warehouse. Labor was a problem more or less, but we got by through the faithfulness of those who have been with us from eight to twenty years.

Omaha, Nebr.—There are two problems that stand out above all others. One is labor and the other taxes. Labor costs have been increasing steadily and our experience has been that labor efficiency has been steadily decreasing. The labor supply in this territory varies considerably. At times it is difficult to maintain a full crew while at other times there seems to be a surplus in the labor market.

Cincinnati, Ohio—Our most outstanding problem in 1952 was the help situation.

Better Business

Chicago, Ill.—The wide acceptance of frozen foods has made the public aware of frozen form of foods. Warehouses should tie in with the frozen food industry on this promotion; let the public know how essential warehouses are in the processing and distribution of these foods. People are becoming conscious of our industry, tell them an interesting story, and they'll listen. Work closely with trade associations for improved methods of handling.

Baltimore, Md.—For better business, each warehouse should stand upon its own feet and allow his competitor the full range of his warehouse to compare his own shortcomings or allow his competitor to justly criticize his shortcomings with the full sense of just criticism.

Cincinnati, Ohio—To render highest possible service to their customers should be the aim of every refrigerated warehouseman.

Dallas, Texas—Encourage volume storage of commodities on a competitive price basis.

Outlook for 1953

Chicago, Ill.—For 1953 we expect no change in volume and a continued squeeze on profits.

Wichita, Kans.—I believe the outlook for 1953 for in-transit storage is relatively good, and I believe all refrigerated warehouses, like any other business, could create better business and bigger volume if they would give the service and maintain the friendship that seemed to be necessary in the 30's.

Baltimore, Md.—The outlook for our business for the year 1953 appears to be very good, and we hope to surpass all the past years.

Kansas City, Mo.—We expect 1953 to be about in line with 1952.

Omaha, Nebr.—As far as 1953 is concerned, we feel that storage volume will maintain its present high level in this particular territory. Meat production will continue heavy and we do not feel that there will be any particular change in the production of poultry and eggs and, of course, all the information that we get regarding the future production of frozen fruits and vegetables from the west coast point to the fact that this will increase steadily. So, we look for no particular change in our storage operation volumewise.

Cincinnati, Ohio—The outlook for 1953 for this company is good.

Dallas, Texas—Like other businessmen, we are optimistic about the future. The whole southwest, as everybody knows, is growing in leaps and bounds. We know this growth will cause us to grow.

New Orleans Warehouse Adds New Freezer Space

FOLLOWING discontinuance of the manufacture and the sale of ice in 1952, the New Orleans Cold Storage and Warehouse Company, New Orleans, La., contracted to convert the space originally used for ice manufacture and storage into two additional zero temperature holding rooms measuring 60 x 60 feet. This will provide an additional 90,000 cubic feet of freezer space. The cost of this conversion amounted to approximately $140,000. The new space was expected to be available for occupancy early in February.

TRRF Annual Meeting

THE annual meeting of The Refrigeration Research Foundation will be held May 15-17 at the Shoreham Hotel, Washington, D. C., in conjunction with the annual convention of the Association of Refrigerated Warehouses May 17-21. The Scientific Advisory Council will meet Friday and Saturday, May 15 and 16, the membership meeting will be held the afternoon of Sunday, May 17, and the Board of Governors Sunday evening, according to an announcement by Dr. H. C. Diehl, director.

NARW President Predicts More Industry Progress

A FULL year of industry growth and progress for the refrigerated warehousing industry for 1953 was predicted by A. B.Efroymson, president National Association of Refrigerated Warehouses. His comments were made during a conference of industry officials in the Association's headquarters office in Washington, December 30.

Pledging the whole hearted cooperation and support of the Association to both the legislative and administrative branches of the new governmental setup beginning January 20, Mr. Efroymson declared, "business men today have an outstanding challenge ahead of them. Instead of the 'blank check' which some have thought would be theirs if the Republicans got in, we find that the duties and obligations of business men under the new government now being set up have been increased rather than decreased. It's up to us", the NARW President continued, "to help the new administration and the new Congress in every possible manner to see that the fundamental concepts of business freedoms and our competitive system of enterprise are maintained without abusing or stretching of the privileges which may be ours under a new 'business government' ".

In commenting about his own industry, Refrigerated Warehousing, Mr. Efroymson was optimistic about both business conditions and sound industry progress during 1953. He emphasized the unusual expansion that has taken place in perishable foods storage during 1952 and cited the fact that refrigerated warehousing space has grown by some 28 million cubic feet since the end of World War II. "This trend will continue", the official predicted, "and particularly during 1953 we shall see considerably more space added, particularly in the low temperature categories".

Efroymson tied the growth of the industry in the last few years closely to the parallel growth of production, distribution and consumption of frozen foods, and called attention to the close inter-relationship between the two industries. The year 1953 is scheduled to be a banner one in frozen foods sales and consumption and the NARW official pointed out the fact that storage facilities for this record production have grown, and are growing, in line with the economic needs of both frozen foods and the whole perishable foods field.

The NARW president was confident that inflationary tendencies in our over-all economy would be arrested by sound national leadership and by increased volume, and resulting lower prices, turned out by America's production capacities and know-how. He placed refrigerated warehousing right "in the middle" of the foods distribution picture of America and cited the large impact his industry causes on the nation's food economy.

Dallas Warehouse Adds To Refrigerating Capacity

THE Alford Refrigerated Warehouses, Dallas, Tex., has announced a program that will nearly double the electrical output and greatly increase cooler and freezer capacity at the company's Cadiz Street plant.

First phase will be installation of three 250-horsepower Bruce-MacBeth natural gas-driven combustion engines with 225-KVA Westinghouse generators. These should be in operation by early spring, W. R. Oliver, plant superintendent, said.

The second phase involves conversion of a 1,225,000-cubic-foot dry storage room into a cooler. Pipes and thirty 3-½ton brine cooler units are being installed to supplement the chilled water refrigerant system. Formerly kept at a temperature of 70 degrees, the room will be brought down to 35 degrees by the added installation.

When the room is ready for use, the plant will have 8,725,000 cubic feet of refrigerated space and dry storage space will have been reduced to 6,250,000 cubic feet.

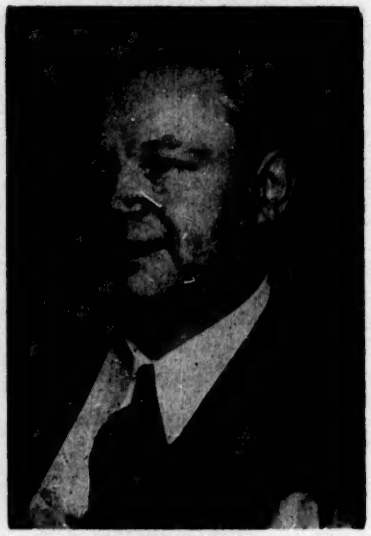
Last phase of the program will involve increasing the plant's refrigerant delivery by 200 tons to operate at approximately 40 degrees below zero. This will increase the company's freezer storage capacity by 400,000 pounds per day. This will be accomplished by installing two electrically driven centrifugal compressors which can deliver about 100 tons of refrigerant each.

Research on Fluorescent Lights

THE development of fluorescent lights that will operate under low-temperature conditions is now being aided by the Refrigeration Research Foundation. An improvement that will aid further has been announced lately, perfection of a system that permits theostat dimming of fluorescent lighting. Production is still in the planning stage.

Johnson Leaves Terminal Succeeded by A. F. Warner

THE resignation of Jerry P. Johnson as vice-president and general manager of the Terminal Refrigerating & Warehousing Corp. Washington, D. C. effective December 31, 1952 has been announced.



Jerry P. Johnson

Continuing the policy in practice for a number of years, of promoting its executives and officers from the ranks of the operating personnel, the company has appointed Albert F. Warner to succeed Mr. Johnson as manager of cold storage and in charge of customer relations. Mr. Warner has been with the organization for the past twenty-six years and for several years in the capacity of assistant to the president and Mr. Johnson in handling the department of which he now becomes the head. Eugene Hurst, also a Terminal veteran has been elevated to the position of assistant manager.

Albert F. Warner

Mr. Johnson is now located at 219 Dupont Circle Building as manager of the "Washington Division," Merchants Terminal Corporation of Baltimore. In the latter capacity, Mr. Johnson is in charge of construction of Merchants' new refrigerated warehouse at Landover, Md., just outside of the District of Columbia. He will also manage their operations upon completion of the facility about June 1953.

During the past few years he has been quite active in the affairs of the National Association of Refrigerated Warehouses, having served as president two years and as chairman of the Legislative and other committees.

Subjects Announced For Training Conferences

IN ADDITION to the training conference held at St. Louis, Mo., February 1-5 by the National Association of Refrigerated Warehouses and The Refrigeration Research Foundation, two additional conferences are scheduled as follows:

March 15-19, 1953 at St. Claire Hotel, San Jose, Calif.

April 12-16, 1953 at Sherston-Belvedere, Baltimore, Md.

The first draft of subjects includes the following: Mechanical handling, refrigeration humidity, safety, cost finding, public relations, employee relations, selling space, panel forums, sanitation, commodity storage—poultry, dairy, meats, seafoods; fruits and vegetables, frozen foods storage, new product storage.

These subjects will be handled by discussion leaders who are outstanding in their respective fields. The "Conference Type" of discussion will be used through these sessions. There will be plenty of opportunity for conference participation by registrants.

A special "Certificate of Graduate Training" will be issued jointly by the Association and the Foundation to each registrant who satisfactorily completes the conference session.

The number of reservations reported received for the St. Louis conference the middle of January indicated that a very satisfactory number of students would be present.

Cold Storage Plant Makes Improvements

THE Lackawanna Cold Storage Division of Beatrice Foods Company is making some major improvements in its plant in Scranton, Pa. The entire absorption refrigeration system is being dismantled and will be replaced with a new compression system in two stages to provide minus 20 degree temperature. Dismantling began on November 1, 1952 and is now more than 60 per cent accomplished. Installation of the new machinery and equipment has begun and is scheduled for completion before March 1, 1953. The new system will be all electric and equipped with the latest design of automatic controls.

Plans also call for an additional improvement in the conversion of 160,504 cubic feet of cooler space into low temperature freezer space immediately after March 1, 1953.

This improvement and conversion is another step in the improvement of the Beatrice Foods Co. Cold Storage Warehouses throughout the country as demonstrated by the new building nearing completion in Denver and the conversion in the Detroit Refrigerating Division at Detroit.

The Beatrice Foods Co. is preparing in this way to assume its share of the burden of the Refrigerated Warehouse Industry to care for the crops and products of the Perishable Food Industries of the country.

Priebe Joins Staff of Poultry Institute

EDWARD W. Priebe, Jr., joined the staff of the Institute of American Poultry Industries January 1, 1953, as merchandising director, a new post created as part of the Institute's expansion program, Dr. Cliff D. Carpenter, president and executive head of the Institute, announced.

Mr. Priebe has a background of 25 years of practical operating experience in the poultry and egg industry, all of it gained during his association with Priebe and Sons, Inc., one of the oldest and best known poultry and egg processing firms in the industry. He resigned as manager of Priebe and Sons' procurement and processing operations last October.

As chairman of the Institute's board of directors during 1950 and 1951, and as chairman of the U. S. Department of Agriculture's Poultry Commodity Research Committee since 1949, Mr. Priebe has already done an outstanding job in leading many important industry activities and is well qualified for trade association work.

How Refrigerated Warehouses Can Meet Needs of Frozen Food Distributors

TO KEEP ABREAST of frozen food demand, refrigerated warehouses must be far-sighted in planning new construction and streamlined operations, Harry K. Schauffler, executive director of National Wholesale Frozen Food Distributors Association, told the annual meeting of the North Atlantic Chapter of the National Association of Refrigerated Warehouses, held at Providence, R. I.

Previous record expansion as needed of sub-zero storage space by the warehouse industry was complimented by Mr. Schauffler. He pointed out however that this had been possible in most cases because of vast "cooler" space which had been capable of speedy conversion as cooler demand declined and sharp freezer demand pyramided. Future expansion in many localities will require substantial new construction, both expensive and time-consuming.

Increased Demand

The rapid increase in demand was shown by comparing 1952 total tonnage received by public refrigerated warehouses, when 55 percent was for sharp freezer storage, with 1950's 51 percent. Projection of the upward trend indicates 60 percent in 1954 and 70 percent in 1958 of total tonnage will require sharp freezer storage.

As confirmation of this demand created by frozen food popularity, Mr. Schauffler cited the half-billion dollar investment in home freezers in 1952 by families throughout the nation. The storage capacity of home freezers installed within the last two years totals approximately 30,000,000 cu. ft. By 1958 it is estimated that zero storage space in homes will be equal to three-quarters of the total in refrigerated warehouses.

New Techniques Needed

"Many individual warehouses will only be able to keep up with frozen food needs," said Mr. Schauffler, "provided they not only start planning now for new plants but for new operating techniques. We are past the cracker barrel storage era when warehouses could count on long term bulk storage of most shipments received."

You remember that the general store itself of a generation ago had big cracker barrels out back and replenished the sales stock out front when it was finally necessary simply by rolling out another barrel. Today's retailer knows that the customer demands crackers in packages and so he replenishes the stock out front every day or so with quite a variety of types of crackers a few packages at a time. This is the same problem faced by the modern refrigerated warehouse.

Today's warehouse must be planned to handle not only frozen strawberries, which have a short packing season once a year, but also frozen fish, meat, poultry, prepared foods, etc. which have an almost continuous packing season. Now, too, poultry appears in the form of parts so that a wider selection is available to the customer. This means more variety of more items moving each day in and out of storage. Streamlined operations become a must if labor costs and time delays are to be kept at a minimum.

Large Displays Needed

Where 30 different frozen items made a fair display in the retail store a couple of years back, today it is more likely to be 130 items to keep up with the demands of housewives. Tomorrow it will be 230 and more. break-up problem for the wholesale distributor. Here again the rates and practices for the refrigerated warehouses are vital to the frozen food operation.

Some warehouses have reasonable rates for sharp freezer storage but demand Main Street frontage rentals when their customer asks for break-up space in order properly to prepare the deliveries for his retail customers. Actually, future full occupancy of the warehouse will be best assured if the wholesale distributor's business continues to grow requiring first one percent of the warehouse for break-up operations, then two percent, then five percent, etc.

Distributors Forced to Add New Space

Failure on the part of warehouse managements in many cities to understand the needs of frozen food distribution and the inefficiencies forced by inadequate space or outmoded practices has resulted in the construction of new facilities financed by wholesale distributors. In many cases these facilities needed for temporary storage are only economical when they compete with the refrigerated warehouse for packer storage.

Warehousemen Experts

Warehousemen should be the best experts in their own field, qualified to handle storage problems more efficiently than frozen food distributors, most of whose time should be concentrated on the techniques of selling frozen foods, the training of retailers, etc. On the other hand, the warehouse should similarly hesitate to compete in the field of distribution, whether openly or by indirect means.

Trucking deals, food plans, and other tempting proposals frequently come to important warehouses, begging that the financing or part of the operations should be handled by the warehouse, with naturally big profits promised. Then is the time for the warehouse management to stop and take a careful look. Careful consideration is necessary as to possible illegal discrimination (under the Robinson-Patman Act) unless similar services are rendered to all. The multiplicity of items now in storage and still expanding also shows that the problem of special service cannot be limited to a few fast-moving items. The headaches of break-up and distribution added to those of refrigerated warehousing have discouraged even hardy souls from venturing further.

Distributors Good Customers

The most important consideration for the refrigerated warehouse in a terminal city is the fact that frozen food distributors are their best promoters. Good distributors make the business of the warehouse. No brand would be stored in that terminal city by any packer if there was not a customer demand for said brand. Hence the distributor who knows his local market—who has created a demand for the brand, and who has the know-how to build greater acceptance for the future—is the greatest asset which the refrigerated warehouse can find.

Cooperation with such a customer will pay dividends for many future years. Perhaps the greatest present need for cooperation is to work out with that customer the most effective immediate methods of saving on labor costs at all stages of operation, and also planning for ever-improved labor saving techniques in the future.

Study Shows Soiled Eggs Poor Storage Risk

WASHED or unwashed, the sooner soiled or stained eggs are moved through the normal channels of marketing, the better the quality at time of consumption, the U. S. Department of Agriculture reports after a survey of egg-washing procedures and equipment in 31 commercial plants in seven states. In comparison with naturally clean eggs, the storage of washed eggs usually proves unsatisfactory from the standpoint of preserving quality. About 10 per cent of all eggs (as gathered from the nest) are soiled or stained.

The study was carried out under a cooperative agreement between the National Egg Products Association and the Poultry Branch, Production and Marketing Administration, under the Agricultural Marketing Act of 1946.

In a study of four different types of egg-washing machines, it was found that unwashed clean eggs, natural or oil processed, kept better in storage than soiled eggs, washed or unwashed, stored as naturals or oil processed (sprayed with oil to help preserve quality). Soiled eggs which were washed showed a greater decline in quality than did soiled eggs which had not been washed.

The washed and unwashed soiled eggs used in the study showed the sharpest decline in quality after two months of storage. Oil processing retarded the quality decline in all eggs and reduced the amount of loss.

Other highlights from the report of the study of washing and storage of eggs were:

(1) Many of the egg washing machines in commercial plants were not being operated in accordance with the instructions of the manufacturer. This could account for the greater quality losses in eggs washed by some machines.

(2) Considerable variation was found in the number of cases of eggs washed per man hour and the washing cost per case.

(3) Some scrubbing or brushing action is necessary in order to remove all of the soil as water alone, or with a detergent, will seldom do it.

(4) Warmed water is necessary in the washing of eggs, both from the washing standpoint of cleanliness and that of minimizing quality loss in storage.

(5) A short presoaking or spraying of eggs with warm water containing a detergent is advantageous in washing because it softens the soil, provided the time and temperature are properly controlled to prevent contamination of the interior of the egg.

(6) Washed eggs, even though washed under the best of conditions, showed a much higher loss and quality decline in storage than naturally clean eggs.

Poultry Institute Absorbs National Egg Products

THE Institute of American Poultry Industries has absorbed the National Egg Products Association, making the NEPA laboratory, membership and staff part of the Institute, effective January 1, 1953.

This announcement, made jointly by Cliff D. Carpenter, president and executive head of the Institute, and Leo Ovson, president of National Egg Products Association, followed formal approval by the Institute and dissolution action voted by NEPA's executive committee after NEPA members had approved the move to disband as a separate organization and become part of the Institute.

The egg products laboratory work started by NEPA will be continued and expanded by the Institute.

Commodity Storage Contract to Be Revised

A COMPLETE revision in the CCC Commodity Storage Contract is now being made by the CCC Transportation and Warehousing Branch, according to a special bulletin from the National Association of Refrigerated Warehouses. A conference on this subject was held last November by the Contract Revision Committee of NARW which met with Col. M. J. Hudtloff, director, and other representatives of the Branch.

According to Col. Hudtloff all contracts in effect now will be amended so that all existing and future contracts will be identical. Some of the major changes will be as follows:

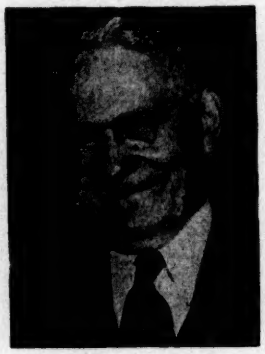
Agriculture officials are going to let NARW "take a look" before issuing the new contract, so that additional and further suggestions might be considered and/or incorporated before final revision and issuance to the industry.

Paragraph 9 will be changed to read in effect "warehousemen will be liable for any loss or injuries to commodities stored hereunder caused by the warehouseman's failure to exercise such care in regard to commodities as a reasonably careful owner of similar commodities would exercise." The warehousemen's tariff submitted with application for approval will definitely become a part of the contract.

On the question of overtime it will include a provision providing for definite rates per man hour for overtime. A paragraph giving warehousemen 48 hours advance notice of cars to be loaded or unloaded will be inserted in paragraph 5. In regard to spacing of commodities the revised contract is expected to provide that commodities shall be far enough away from the walls to provide adequate circulation. Loading and bracing as covered by the warehousmen's tariff will be a part of the contract.

Harvey S. Paull Retires

AFTER 60 years in the cold storage business, Harvey S. Paull, president of the Milwaukee Cold Storage Co., Milwaukee, Wis. has retired. He had been president since 1932. Before that he was successively a warehouse hand when the plant was started 60 years ago; superintendent in 1899 to 1902, in which year he was made secretary of the company, and treasurer in 1915.



Harvey S. Paull

In recognition of his many years service as a refrigerated warehouseman, a tribute was presented to Mr. Paull by the Great Lakes Chapter of the National Association of Refrigerated Warehouses at a meeting held in Chicago in May, 1948.

The new president is David B. Stearns who had been treasurer. In 1948 he graduated from Harvard University law school, taking his bachelor's degree in 1942. He served as a marine corps fighter pilot in World War II. He is now vice president of the Wisconsin Warehousemen's Association and secretary and treasurer of the Milwaukee Warehousemen's Association. Miss Elsa Puhl, who has been with the company since 1926, has been chosen as president.

December 31 Cold Storage Holdings

FROM reports received by the Department of Agriculture for the month ended December 31, 1952, public warehousemen indicated cooler space to be 64 percent occupied and freezer space 78 percent. This was a decline of 3 points in cooler utilization and no change in the occupancy of freezer space. Both cooler and freezer were below average for this time of year, the former by 1 point the latter by 2 points. Yet, in the Middle Atlantic, East South Central, and Pacific Coast States, regional freezer occupancy was greater than their respective December 5-year average with each area reporting freezer utilization of 80 percent or better. City-wise, only New Orleans and San Francisco indicated better than 80 percent occupancy in cooler space but in more than half of the cities where a major share of the refrigerated storage space is located, freezer occupancy was also above 80 percent.

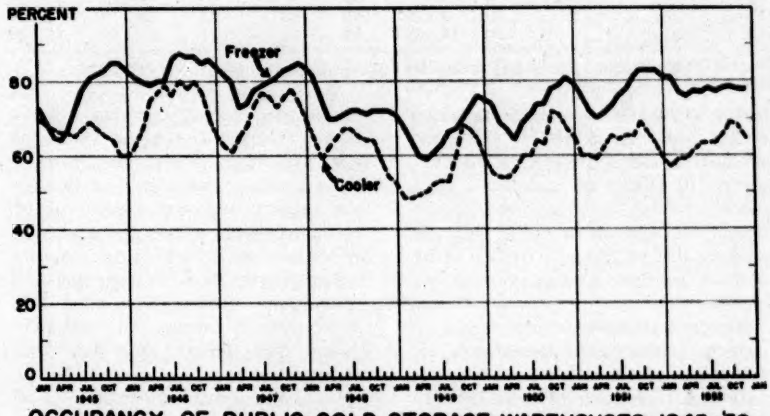
A net decrease in cooler held commodities and an increase in freezer weights brought national holdings to 2.3 and 2.4 billion pounds respectively by December 31, 1952. Cooler commodities reflected a 13 percent decrease as the result of seasonal withdrawals in stocks of fresh fruits and dairy products which more than countered net increases in holdings of meats, dried and evaporated fruits, nuts and nut meats. The 6 percent gain in freezer weights was attributable to the significant accumulations of frozen meats which with sizable holdings of frozen fruits, vegetables, and poultry still in store brought national holdings to an all time record high of 2.4 billion pounds.

National holdings of fresh apples were down to 20 million bushels by December 31—a decrease of 5 million during the month. Fresh pears still in storage totaled less than 2 million bushels. The net out of storage movement during December was about average for both apples and pears.

Net-withdrawals of 25 million pounds of frozen fruits during December equalled the previous all time record high for the month (1946) thus reducing national holdings to 291 million pounds. A reduction in storage holdings was indicated for all frozen fruit items except frozen apples. The seasonal decreases ranged from 1 to 10 million pounds with strawberries accounting the largest net withdrawal followed by frozen cherries which fell off about 5 million pounds.

Frozen orange concentrate holdings were reduced during December to 10 million gallons which were about equal to the stocks last year. The net disappearance during December of about a million gallons was also comparable to the change last year.

A record December net withdrawal of frozen vegetables — 33 million pounds—left 537 million pounds in store by the end of December. Yet, stocks still in storage were at an all time high for the month despite this record out movement. Leading all frozen vegetable items in volume moved from store was frozen peas which at 142 million pounds reflected a December decrease of 21 million pounds. Sweet corn was down 8 million pounds to 41 million while snap



OCCUPANCY OF PUBLIC-COLD STORAGE WAREHOUSES, 1945-'52

TABLE 1—COLD STORAGE HOLDINGS IN PUBLIC, PRIVATE AND SEMI-PRIVATE WAREHOUSES, APPLE HOUSES AND MEAT PACKING PLANTS (000 LBS.)

	Dec. 31 1952	Nov. 30 1952	Dec. 31 1951	Five Year Average
Meat and meat products, lbs.	958,424	692,691	912,247	805,271
Lard and rendered pork fat, lbs.	56,582	56,592	54,522	60,732
Frozen poultry, lbs.	277,357	294,424	302,151	270,988
Creamery butter, lbs.	72,418	83,951	27,051	60,705
American Cheese, lbs.	204,224	210,029	194,784	161,067
Other cheese, lbs.	20,155	21,263	18,334	17,663
Shell eggs, cases	156	393	141	128
Frozen eggs, lbs.	50,497	72,462	67,200	82,308
Apples, bu.	20,198	24,941	22,113	25,983
Frozen fruits, lbs.	290,617	315,757	331,411	313,968
Frozen vegetables, lbs.	536,504	569,974	498,340	373,619
Frozen fish, lbs.	195,654	210,658	168,792	151,629

TABLE 2—PERCENTAGE OF SPACE OCCUPIED BY PUBLIC COLD STORAGE WAREHOUSES (APPLE HOUSES EXCLUDED)

	Net piling space (000 cu. ft.)		Dec. 31, 1952 (%)		Nov. 30, 1952 (%)		Dec. 31, 1951 (%)		5-year Average (%)	
	Cooler	Freezer	Cooler	Freezer	Cooler	Freezer	Cooler	Freezer	Cooler	Freezer
New England	2,504	5,875	39	76	42	75	50	87	52	83
Middle Atlantic	27,903	32,758	66	82	71	85	64	84	65	81
East North Central	27,965	28,834	60	80	66	82	64	84	65	81
West North Central	8,232	18,198	58	78	60	67	56	86	66	84
South Atlantic	8,033	9,806	67	70	67	69	67	86	65	84
East South Central	2,478	3,504	71	88	79	89	74	88	69	85
West South Central	7,056	7,975	70	62	65	60	63	63	66	74
Mountain	1,302	2,821	57	78	63	78	53	92	58	79
Pacific	16,437	27,304	72	80	73	82	67	79	66	76
United States	101,901	137,075	64	78	67	78	63	83	65	80

TABLE 3—PERCENTAGE OF SPACE OCCUPIED BY PRIVATE AND SEMI-PRIVATE REFRIGERATED WAREHOUSES AND MEAT PACKING PLANTS (APPLE HOUSES EXCLUDED)

	Private and Semi-Private Warehouses						Meat Packing Establishments					
	Net Piling Space (000 cu. ft.)		Space Occupied—per cent				Net Piling Space (000 cu. ft.)		Space Occupied—per cent			
			Dec. 31, 1952		Dec. 31, 1951				Dec. 31, 1952		Dec. 31, 1951	
	Cooler	Freezer	Cooler	Freezer	Cooler	Freezer	Cooler	Freezer	Cooler	Freezer	Cooler	Freezer
New England	——	——	—	—	50	82	354	—	39	—	82	—
Middle Atlantic	1,471	1,219	41	63	56	79	10,508	669	58	67	64	80
East North Central	3,123	5,393	75	69	84	77	6,550	783	77	76	94	96
West North Central	474	1,421	53	55	99	77	3,899	2,087	93	84	92	87
South Atlantic	113	3,294	67	65	79	60	6,966	268	41	64	85	100
East South Central	——	——	—	—	—	—	——	——	—	—	100	86
West South Central	——	——	—	—	85	85	78	15	100	93	100	100
Mountain	464	——	59	—	—	78	——	——	—	—	97	100
Pacific	1,402	2,870	46	69	52	78	8,754	166	45	93	95	95
United States	7,047	14,197	59	66	71	73	37,100	3,988	59	79	87	93

NOTE: Blank spaces indicate that insufficient returns were received.

beans at 52 million pounds reflected a December decrease of 7 million pounds. Lesser withdrawals were reported in stocks of asparagus, lima beans, spinach, pumpkin and squash while holdings of broccoli, Brussels sprouts, and cauliflower increased by 3 to 4 million pounds during the month.

National stores of cream totals 23 million pounds by December 31, which compares with 16 million last year and 18 million in store on December 31 during the 5-year period ending 1951.

Less than half as much butter moved from store last month as during December in the 5-year period ended 1951. The 12 million pound disappearance compares with an average of 30 million and 32 million last year. Stocks of 72 million pounds of creamery butter thus were more than two and a half times greater than last year's holdings and about one-fifth greater than average.

Shell egg holdings were down to 156,000 cases while frozen egg stocks at 50 million pounds were the second lowest December on record since 1937.

American cheese stocks reached a new record high for December with 204 million pounds in storage. These holdings exceeded the previous December 31 record (1951) by more than 9 million pounds.

The net change in frozen poultry stocks was contraseasonal with stocks decreasing 7 million pounds which was in contrast to a 4 million pound increase during December in the 5-year period ended 1951. Holdings of 287 million pounds compares with 302 million last year and average December 31 stocks of 271 million pounds.

Although turkey holdings were down 13 million pounds to 145 million, they were at a new record high for the month.

Meats in storage on December 31 were the largest on record for the month since 1936 with 958 million pounds reported on hand. Of this amount beef holdings equaled 276 million pounds and pork, 508 million pounds. During December, stocks of beef increased twenty-five percent above average with a gain of 45 million pounds reported. Holdings of frozen beef were at near record levels for the month. Pork holdings also reflected greater than average net-accumulations during December but total holdings were only slightly greater than average and less than holdings last year.

Net withdrawals amounting to 18 million pounds brought national holdings of fishery products down to 217 million pounds. Frozen fishery stocks were reduced to 196 million while cured fish holdings fell off to 21 million. Area wise, New England stocks equalled 47 million pounds, followed by 45 million in the Middle Atlantic and 48 million in the West Coast.

Storage Outlook

If the historical pattern prevails, cooler occupancy during January should decrease by as much as 3 points. Since December 31 stores of cooler held commodities were below average, net withdrawals during January may not be significant enough to reflect an average change in cooler occupancy. Freezer occupancy also should decrease during January. The expected decline is one point, but much will depend upon the rate of movement from store of frozen fruits and vegetables which are now in their seasonal decline and conceivably could reduce occupancy by more than average.

Handling Frozen Foods

A NUMBER of constructive suggestions for the handling of frozen foods were developed in a letter written by Harlan J. Nissen, Terminal Refrigeration Co., Los Angeles and published in Frozen Food Age. Mr. Nissen's letter, which was written after an article entitled "Handling Abuses Threaten Industry" appeared in the publication, cites the fact that he has been using these hints on handling frozen foods for some time in "an attempt to educate not only the salesmen but the retail buyer and handler."

His suggestions in essence are (1) Encourage early morning pickups (between 7:00 and 7:30) because undue exposure deteriorates products and almost all retailers use uninsulated trucks; (2) Train salesmen to emphasize the importance of protecting merchandise from the sun and other elements by always transporting in a covered vehicle; (3) Emphasize the point of not selling the retailer more than his freezer facilities will hold.—Cost Facts.

Thermostabilization of Eggs for Storage

SOME phases of the question whether thermostabilization will prove useful for stored fresh eggs are pretty well answered in studies by Agnes F. Carlin and Janiece Foth. The studies were conducted at Iowa State College under contract to the Western Regional Research Laboratory.

The experimental eggs were stabilized in oil at various temperatures for various times and stored for periods up to eight months. Egg white whipping and angel cake volume were adversely affected by the thermostabilization and these adverse effects did not change during storage. Sponge cakes, plain cakes and custards were not affected, either before or after storage. Thermostabilization imposed a "fresh" appearance of the thick white, but separation of yolk and white was more difficult and field of white was lower as a result of greater adherence to the shell.

It seems likely that the difference in separation of white might not be noticeable to the home user. But questions still remain: will use by commercial bakers be affected? Would it reduce losses in grade and those due to spoilage sufficiently to warrant commercial use of the method?—TRRF Information Bulletin.

THE ICE INDUSTRY

NATIONAL ASSOCIATION OF ICE INDUSTRIES

Executive Offices
1706 L St. N. W., Washington 6, D. C.

Executive Secretary
Guy W. Jacobs, Washington, D. C.

President
Wm. J. Ayers, Memphis, Tenn.

First Vice-president
Paul H. Andres, Oklahoma City, Okla.

Second Vice-president
E. L. Gunn Jr., Atlanta, Ga.

Treasurer
Geo. Steers, Jr., Kalamazoo, Mich.

THIS MONTH IN BRIEF

Additional reports from ice distributors give an analysis of last year's business and some comments on the immediate future.

The success of vending machines in the retail ice business as told by an ice man with many years experience. This operator testifies to the fact that his vending business produces two-thirds of the company's income. People want ice, he says, and will use lots of it if they know where and when they can buy it.

Wages paid by the ice industry in different parts of Canada are summarized from a survey made by the Canadian Association of Ice Industries.

High light of the Ohio Ice Convention held at Columbus January 16 and 17 was the use of ice for packing sweet corn and other new merchandising projects. The fall meeting of the New England Ice Association consisted of a round table discussion of all the more important merchandising ideas.

Review of the Ice Industry

A NUMBER of letters from ice manufacturers and distributors were received too late to be included in the annual review in the January Ice and Refrigeration. Although these reports do not materially alter the conclusions obtained from a larger number of letters, they are given here as added information.

Ice Tonnage

Tucson, Ariz.—On tonnage basis, we will be down about one percent from 1951; on dollar basis we will be up about three percent.

Hollister, Calif. — Indications are that we shall have sold about 10,000 more tons in 1952 than in 1951, the main reason being that we added more customers this year.

Pueblo, Colo.—Our tonnage was up seven percent and dollar volume up 10 percent.

Colorado Springs, Colo.—Sales in 1952 were off 10 percent due to drop in sales for home refrigeration and to the steel strike in this locality. Dollar volume was up one and one-half per cent due to price ceiling adjustments.

Attleboro, Mass. — Our ice sales were up, thanks largely to a warmer summer.

Springfield, Mass. — Ice sales in 1952 were greater than 1951—up approximately $8,000. The chief reason was railroad icing for air-conditioning at a low quantity price. Tonnage was up approximately 1,743 tons.

Omaha, Nebr.—Our ice sales for 1952 were 800 tons greater than in 1951.

Portland, Ore.—Tonnage was about the same as the previous year but income was improved due to price changes.

Danville, Va.—Our 1952 ice sales, for the first eight months were less than the same period of 1951.

Tacoma, Wash.—Our overall sales were down 600 tons in 1952 in comparison to 1951. The big loss was in sales to the military at a nearby army base that was practically closed down due to troop movements to Korea.

Costs

Tucson, Ariz.—Our costs were up due mainly to wage increases, but we sold more cube and crushed ice at higher tonnage value.

Hollister, Calif.—On a per ton basis costs were considerably higher, due primarily to rising costs of labor, insurance, taxes, etc.

Pueblo, Colo.—Income was more in line with costs this year than last year because dollar volume was up. In this respect our business was comparable to years prior to 1950.

Springfield, Mass.—Costs were up but they appeared to be in line. Power and labor were the main reasons for increased costs.

Omaha, Nebr.—Costs were about the same for the year.

Portland, Ore.—Costs were in line with income compared to the previous year, reversing the trend of the past two years.

Danville, Va.—Costs were up four per cent in 1952 over 1951.

Processed Ice

Tucson, Ariz.—We sell crushed ice, not sized. The crushed ice business was up 20 percent over 1951, mainly due to commercial sales which represents 80 percent of our business.

Hollister, Calif. — Our commercial sales of crushed ice was about 800 tons compared to 200 tons in 1951.

Pueblo, Colo. — Our tonnage of crushed ice was up four and one-half percent compared to 1951 and the dollar volume up 12½ per cent. Domestic sales are about two and one-half percent. For produce icing we sold 38 tons with a dollar value of $418. We started this season late but a half-year's sales amounted to 18 tons with a dollar value of $234. This is a growing outlet.

Springfield, Mass. — We sell both sized and crushed ice. Sized ice up 25 per cent over 1951. All sized and crushed ice is for commercial use. Expect about the same demand and volume for 1953.

Omaha, Nebr.—We sell sized and crushed ice. Our total sales for the year amounted to $185,273.00, compared to $197,725.00 for 1951. We had very little produce icing and no meat icing.

Portland, Ore.—The dollar volume was greater. Tonnage of crushed ice was about the same. We revised prices May 1 and October 1. For produce icing our sales of snow ice during the months of July and August amounted to $4,700.

Danville, Va.—We had about 25 percent increase over 1951 and expect some increase of processed ice sales in 1953 over 1952.

Tacoma, Wash.—Our approximate sales of sized ice mounted to about 1,600 tons in 1952. Dollar volume was improved somewhat after we increased our price $2.00 per ton. Our market in sized ice runs to restaurants, bars, vegetable and meat icing in retail stores.

The Ice Industry

Vending Stations

Tucson, Ariz. — We have several vending stations and now have two more on order. We vend 10 and 25 lb. cube and crushed bags, 25 and 50 lb. block. We expect to expand these sales in 1953.

Hollister, Calif.—The vending machines we are indirectly associated with show a sales decline in volume every year. Sizes dispensed are 50 and 25 lb. bags and cubes. In our area five vendors are in operation.

Pueblo, Colo.—We are now operating one vendor, selling 50 lb. block, 25 lb. block and 15 lb. sized. Sales increased 25 percent in 1952 over 1951 in sized ice, with block ice showing the same tonnage as 1951. We expect to put in a couple more next season.

Attleboro, Mass. — We have one vendor at the plant but no plans as yet for additions.

Portland, Ore. — We have three vending stations, also one at the plant. Also 19 three ton stations. Do not expect to expand this year.

Tacoma, Wash.—We are operating six vending stations that vend 25 and 50 lb. blocks only. They do a good job in the summer months but are not too good during the winter. The sales evidently are for the fisherman and tourist rather than for home use. We would like to expand this type of station in 1953.

Advertising

Phoenix, Ariz.—We use newspaper and radio with some magazine and trade journals.

Pueblo, Colo.—Our advertising is limited to newspaper and we expect to continue this program in 1953.

Springfield, Mass. — We use local newspapers; will do same in 1953.

Attleboro, Mass.—We do radio and newspaper advertising.

Portland, Ore. — We use baseball score cards, grocery and meat dealer magazines and merchandising helps distributed by the National Association of Ice Industries.

Tacoma, Wash.—Our advertising is limited to the classified telephone directory.

Selling More Ice

Tucson, Ariz. — The Ice industry needs better packaging and making ice easier to buy by making it available everywhere.

Hollister, Calif.—Give better service to new and old customers to discourage their use of an ice machine.

Portland, Ore.—Our suggestion for enlarging the market and selling more ice is to do more local advertising and make full use of N.A.I.I. research.

Tacoma, Wash.—We plan to again stress meat and vegetable icing in 1953 as it was fairly successful in 1952. That seems the best means to keep up tonnage and profits as prospects in general are not too encouraging.

Outlook for 1953

Tucson, Ariz.—We hope that 1953 will equal 1952.

Hollister, Calif.—We expect 1953 to be about the same as 1952.

Pueblo, Colo.—We expect a drop in retail sales to home refrigerators but an increase in party ice and sized ice. Ice cube sales are on the increase.

Springfield, Mass. — We expect about the same as 1952.

Attleboro, Mass.— In this section the ice business seems to depend very largely on the weather.

Omaha, Nebr.—We expect about the same business in 1953.

Portland, Ore. — We expect 1953 business to be somewhat better, now that prices are where they should be. But we shall have to continue merchandising.

Danville, Va. — The outlook for 1953 depends very largely upon the weather and general business conditions.

Ice Company Celebrates Fiftieth Anniversary

A CHRISTMAS party, complete with bonus checks for the 19 employees, was coupled with an observance of the 50th anniversary of the Liberty Ice and Fuel Co., Springfield, Mass.

Peter F. Hogan, who has been sole owner and president of the firm since 1914, distributed the bonus checks with brief remarks to the 19 employees and as many guests. The checks were based on periods of service with the company. Robert B. Clark, with 49 years behind him, was dean of the employee group.

In turn, the employees presented Hogan with a Christmas gift of luggage in recognition of his years of leadership.

The half-century story of the company is one which runs the gamut from winter ice-cutting and horse-drawn wagons to modern refrigeration plants and trailer truck fleets.

The business was launched December 8, 1902, by the late Michael Mahar, with Peter Hogan, then a boy, as his employee. The total inventory of equipment was a frame ice-house, a one-horse wagon and the natural ice that formed each winter on the old Chicopee Reservoir off Liberty Street. Mr. Hogan took over the business in 1914.

Mr. Hogan, still active in the business and still able to lift a 300-pound cake of ice, was recently elected New England representative on the board of directors of the National Association of Ice Dealers. He has been regional president of the group for several years.

Operating the business with him are his sons, Bernard, Vice-president; Wilbur, in charge of the heating division; and Paul, in charge of the truck fleet. The elder Hogan's daughter, Mrs. Mary Hogan Allen, is office executive. All were present for the party.

New Well Provides Source of Revenue

FACED with the problem of finding and developing an adequate source of water suitable to the manufacture of clear, clean ice, or the ruining of expensive equipment, J. S. Earman, owner of the Vero Beach Ice & Cold Storage Co., Vero Beach Fla., after two years of research and experimentation "hit the jack-pot."

Many borings were made on the high sand ridge in Vero Beach. Water was tested at every foot until finally, a fine vein of water showing a natural trace of fluoride was found. The water was so pure the State Board of Health gave it a 100 percent clean bill and—Mr. Earman decided to bottle and sell it as well as use it to make crystal clear ice. Because the ice manufactured from this water has a sky-blue color it was decided to call it Blue Crystal Water.

The well was sealed off with steel casing, a ten foot bronze screen was installed and then lead sealed against contamination. Water is carefully drawn from this well at a very slow rate, not faster than eight gallons per minute, where it is processed under the rigid supervision of the Florida State Board of Health.

A small but modern processing plant has been set up just back of the ice plant and the taste and odor free water is sealed in half gallon containers that fit easily into a refrigerator. Five gallon containers can also be obtained.

Special racks have been built on the sides of the ice trucks and the water can be delivered without additional cost. Several water coolers also have been installed, which the company services with ice and water and rents for $5.00 a month.

The new by-product is attractively displayed in a show window on the platform of the Vero Beach Ice Co.

Harbaugh Heads Aero Club

PAUL C. HARBAUGH, president of the Liberty Fuel & Ice Co. Portland, Ore., has been elected president of the Aero Club of Oregon. Mr. Harbaugh was elected for a one-year term as head of the club, which is the largest chapter of the National Aeronautic association in the United States

Front view of one of the vending stations installed by City Products Corp. Note electric sign at left and large "Ice" signs, which are red.

VENDING ICE THE MODERN WAY

A down to earth discussion of the place of vending machines in the ice business, their locations and other peculiarities, and the reactions of people to the idea of vended ice.

R. C. MUCKERMAN
City Products Corp., St. Louis, Mo.

This is a story of a big scale vending machine operation as told at the recent National Ice Convention. In the City of St. Louis, the City Products Corp operates seventy vending stations and it is expected that by this time next year, twenty more will have been added. These stations now are producing one-third of the company's income. This experience, as told by Mr. Muckerman, has proven again that people want ice and will use lots of it, if they know where they can buy it at a convenient location.

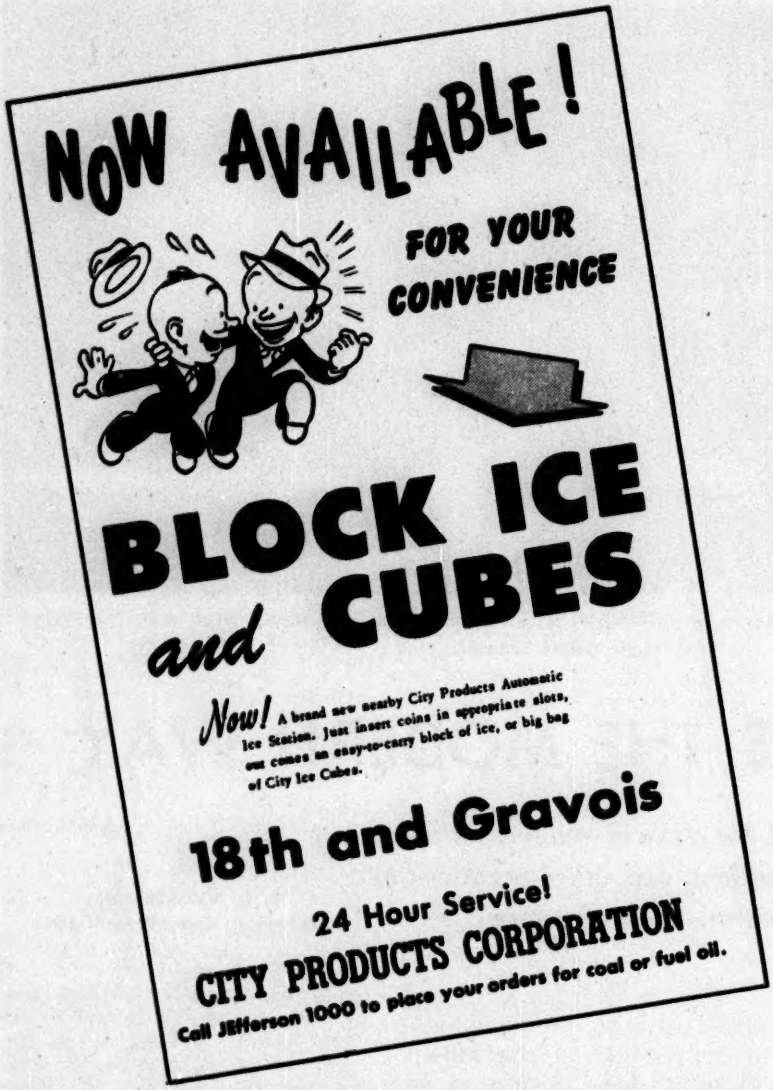
IN ST. LOUIS we have 70 vending machines, of which 35 are isolated away from our regular operating properties and plants. It has been our experience that if you make ice available to the public, they will come and get it, providing it is made convenient to reach. In one case we had such a plant where the customer had to drive through a dark street to reach it. We put in an automatic vending machine station directly across the street, in a more convenient location, and sold double the amount of ice.

We put these stations on rented property anywhere from $35.00 to $75.00 a month rent. It costs us between $10,000 and $12,000 to install a station. We black-top the whole area we lease and set the station on this paving. We install flashing ice cube signs which cost approximately $450.00 apiece. We cover the back of the premises with aluminum on steel rails set in concrete. We paint this aluminum yellow with red letters, which are our company colors for both our trucks and our vending machine stations. We light these stations up with many floodlights, with time clocks on all of them. These clocks at this time of the year are turned on at 5:00 p.m. and off at 5:00 a.m. We have in mind that if a place is well lit up, women and children will not be afraid to go there to pick up a bag of ice. We vend only 25-pound pieces of block ice, and 25-pound bags of cubes, nothing smaller.

These stations today return one-third of the profits, before taxes, of the St. Louis Division of City Products Corp. Without the vending machine stations and the relatively higher price of processed ice, I don't know where we would be with the volume we sell.

Advertising

We do a great deal of advertising of ice and as a matter of fact, we are spending more for local advertising than we ever did before. We allocate from our sales, 10 cents a ton for advertising. We charge that against our advertising budget throughout the year, and by the end of December, we usually have a well-balanced budget. We are on television; we are on radio after the ball games. We have a big sign 60 feet long out in left field at Sports-


NOW AVAILABLE!
FOR YOUR CONVENIENCE
BLOCK ICE and CUBES
Now! A brand new nearby City Products Automatic Ice Station. Just insert coins in appropriate slots, out comes an easy-to-carry block of ice, or big bag of City Ice Cubes.
18th and Gravois
24 Hour Service!
CITY PRODUCTS CORPORATION
Call Jefferson 1000 to place your orders for coal or fuel oil.

These dodgers are used to saturate trading territory of newly opened vending stations of City Products Corp.

man's Park in St. Louis. Whenever a game is televised and a ball is hit into left field, anyone who has a television set turned on within a 100-mile radius of St. Louis will see the sign, "City Ice Cubes, 70 automatic vending machine stations." We also have in St. Louis our own Public Service Company handling their own broadcasts on which they have a program of twenty announcements a day.

Every time we open a new station, we immediately flood the territory surrounding that station with a blotter giving the location and other information. We do newspaper advertising. We have a card on which is shown every place you can get ice in St. Louis, all the 70 stations and their addresses. Every piece of literature, every mailing, every private letter that we mail out of the St. Louis office contains that information. We have girls on the sidewalks in various locations in the downtown area just passing these cards out to anyone who may come along, because people today just don't know where they can get ice. They want ice but too often the iceman does not tell them it is available, and where they can get it.

Two Sizes Sold

We vend only two sizes packaged ice for a definite reason. If a customer wants a small package but finds that only 25 pounds is available, he will take it. On the other hand, very few will buy two or three 10-pound bags. So for every customer who wants only 10 pounds, you are selling 2½ times what that customer would have bought. And don't forget that with the high cost of operating, the high cost of cubing, the high labor cost today, volume means a great deal, and if you have that volume, you can cut costs.

We have installed automatic bagging and hoppers on our cubing machines at a cost of approximately $1,000. One man can put the blocks on the cuber, pack it, and go right down the line, and the quote for that man's operation on the average cuber today is 45 to 50 blocks in eight hours. You may ask, "What does that cost?" We figure that with present labor costs, cubing should cost about $2.00 to $2.40 a ton.

My experience has led me to believe that this vending machine business is the greatest thing I know of to perpetuate the ice business. First of all, you are selling your highest priced merchandise, and, the people will buy it if you make it available to them in proper areas and localities where it is easy for them to go. We are continuing to put them up. I hope between now and this time next year that we will have at least twenty more in St. Louis. We have had cases where a vending machine station was selling more than it could really handle and when we installed another within a 10 or 15 block radius, it not only relieved the excess congestion, but in addition built its own sales, sometimes increasing the sales in that area by as much as 50 percent.

Yellow Houses

We are promoting throughout our area our own colors of yellow and red lettering trimmed with black and every one of our stations is known as "The Little Yellow House." I was recently in Springfield, Mo., where we installed a station and a woman happened to be driving through there and she stopped and wanted to see how it operated. The manager asked her how she knew it was there and she said: "Well I saw the little yellow house, and my land! St. Louis is flooded with them."

The last two stations we put up, one was on a prominent thoroughfare, where we counted 70,000 cars a day passing, and the other was on a street where we counted 66,000 cars a day passing. Commercial customers in St. Louis used to have the janitor come on at 6:30 in the morning to meet the iceman and take the ice and ice up, but today that same janitor is coming on at 11:00 o'clock in the morning and going to the vending machine and getting his ice

and this allows him time for a lot of night work.

We even advise our routemen that, instead of driving five or six miles back to the plant to get a block or two of ice, they should get what they need at the nearest vending station, because the price there is the same as for delivery to the domestic trade, and this will save overtime and cartage, as well as saving the driver's own time.

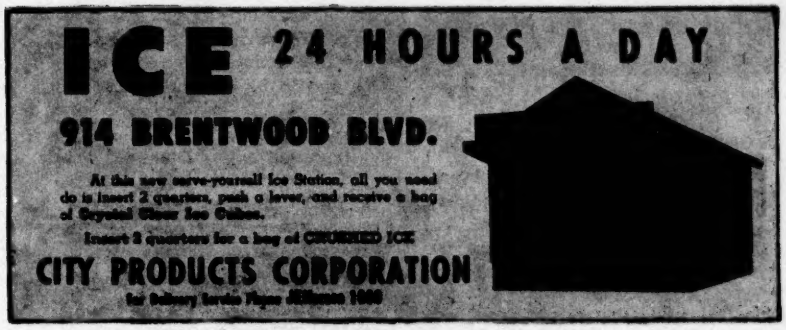
Servicing the Machines

Now, you may wonder how we take care of these vending machines. First of all, we use the National Ejector Coin Box and we used to have to take the money out four or five times a day. We have now changed that routine by installing a 2-inch tube leading from the coin box, through the wall into a 10-inch steel drum on the inside of the house, with a bag fastened with a bracket and lock. That bag will hold about $1,000 in silver and the money is picked up at longer intervals than once a day. A man simply removes the bag, puts in a new one, and is gone in about five minutes. To handle this money at our office we use a large size counting and sorting machine similar to those that are used by banks.

We have men who load ice on the belts, handling from six to eight stations. They come on at 1:00 or 2:00 o'clock in the afternoon and work until midnight or 1:00 o'clock in the morning. We have another crew that delivers the ice to the vending machine stations in refrigerated trucks. Every one of our vending machine stations is the same as a commercial customer. Our delivery man charges this ice to that location and when our man collects the money, he credits the receipts to that individual station.

We make the rounds at least once a month to audit each station, because we recognize that there are a lot of "bugs" in all vending machines. Every once in a while we see a rebate go through for $10.00 or $12.00. Well, what happened? All of a sudden it went off and all the ice ran out, and there are many other things that may happen. It is a specialized business today, but I am absolutely sold on the idea of vending machines taking up the slack of what we might call decreased sales.

We have installed many vending machines at a cost of $10,000 or $12,000 and in some cases we have invested as much as $35,000 in a single installation. So far we are making between 30 and 40 percent return on our investment per year before taxes.



One of the blotters used by City Products Corp. to advertise their vending stations. Reduced from 3½x9 inches.

The People Want Ice

From our experience I can say that you give the public what they want, in a proper form, the form in which you should give it to them, I mean, not wet cubes, not wet processed ice and not wet block ice, but the quality that you would want yourself if you had to go out and buy it; if you make it convenient for them, in places where they are not ashamed to go, places where they are not afraid to send a 12-year old girl or a 14-year old boy, where they know there is nothing to bother them, well illuminated places, well publicized places, well painted places, the people will buy ice.

But it is important to keep them up. We have oil drums on each side of all stations where refuse may be discarded. After all, we ice people have a lot to live down from the horse and wagon days.

Stations Advertise Selves

Many operators say they would like to install a station, but are afraid of the investment, they are off the beaten path, etc. But there is nothing to prevent them from publicizing a beautiful station by setting it out on a highway, in the heart of town, in the heart of the business district, and telling the people where it is. The ice industry has a product that everybody wants and everybody needs and the iceman himself is at fault because it is not accepted more than it is.

We don't want to forget that most ice plants are producing below capacity because sales are going down. Why? You have lost your tonnage business; you have lost a lot of dealer business, but you haven't lost your domestic business. You just think you have. That domestic business is still there in a different form and the public will come and get it.

The super-markets today are living on the theory that the people will do their own shopping. We have very few grocers and butchers today who offer a delivery service. Their customers have to go and get it. They are all right down our alley if we will increase our investment a little bit to perpetuate the business. I'm telling you, if you have a plant, don't sit back and let your investment decline in value. Expand it, put it where it can be seen and glamorize it, advertise it, let the public know what you have got and what they can get and where and when they can get it. They don't care what they pay; when they want it, they want it, and they will buy it.

Colorful Sales Aids For Meat On Ice Customers

MORE material to help ice men follow through with Meat-On-Ice customers has been prepared by the Public Information and Marketing Department of the National Association of Ice Industries. The material includes two colorful merchandising aids: 1. A full color pamphlet for customer handout; 2. A two-color point-of-sale banner for display in stores.

The handout pamphlet tells why and how ice keeps meat fresh and is designed specifically to get the Meat-On-Ice story across to meat customers in the store. They can be placed on the counter or handed out at the checkout counter. Space on the back permits store name imprint.

The store banners are printed in red and blue, reading "Ice Keeps Our Meat Fresher, Jucier, Full of Flavor." This eye-catcher should bring about fine results for Meat-On-Ice users. Every meat handler will welcome this addition to his store. It will attract attention and keep customers reminded about this better method of preserving fresh meats.

A forceful and convincing grocery trade paper advertising campaign is softening up the merchants. It is now up to the ice men to follow through.

The Ice Industry

Ice Making Plant Converted to Cold Storage

AFTER 69 years of continuous operation the Diamond Ice & Coal Company, Charleston, W. Va., sold its last block of ice December 21. The ice-making plant will be converted to cold storage space to enlarge the service in that field according to E. Dana Smith, president. The ice marketing business has been sold to the North Pole Ice Company of Charleston.

In recent times Diamond Ice has sold about 20,000 tons of ice annually, but the trend, especially since the end of World War II, has been toward an expansion of its cold storage and freezer business.

At present, the company has 485,000 cubic feet of cooler storage space in its buildings at Bullitt and Welch Sts., and 215,000 cubic feet of freezer space.

Diamond Ice was founded in 1883 by Admr. Sidney A. Staunton, and at the time it was one of the first ice manufacturing plants in the country. At one time it maintained a stable of 50 horses, and its wagons stopped at practically every door in Charleston.

Survey of Wages Paid Employees by Canadian Ice Industry

IN RESPONSE to requests from members the Canadian Association of Ice Industries has made a survey of wages paid by the ice industry in various sections of Canada. The results are shown in the tables below. It will be noted that there is a considerable lack of uniformity in rates of pay, due perhaps to the difference between large and small cities and also doubtless to prevailing wage scales in different parts of the country.

For this survey, typical companies were contacted, representing the west coast, prairie province, Ontario, Quebec, and the Maritime. Figures from each of those sections were tabulated showing rate of pay and commission for route salesmen, whether a straight wage or commission, and rate of pay and number of hours worked by storage men, tank men, and engineers. A number of companies, it will be noted, provide a guaranteed minimum and commission for salesmen.

SUMMARY OF WAGES TO ROUTE SALESMEN IN CANADIAN CITIES

Location of Companies	Straight Wage	Guar. Minimum	Rate of Comm.
West Coast	-	45.00	10½% gr. sales plus 2% retail
	-	45.00	12½% of whsl. 10½% retail
Prairie Prov.	-	44.00	4½c unit
	spec. del. 95c hr.	41.80	25 lb. del.—5c 50 lb. del—7c
Ontario			100 lb. del.—9c
	-	39.00	
		44.00	5% cash
	-	45.00	2.25 ton
	85c — 90c hr.	-	-
	50.00	-	22% of cash
	50.00	-	-
	1.15 hr.	(natural Ice)	-
	-	40.00	3.45 ton
		40.80 to 44.40 winter summer	2.50 ton
	46.50	-	whsl 1.80 ton over
	1.30 hr.	-	2 ton day Ret. 2.50 ton over 2 ton day
Quebec			-
Maritimes		30.00	3.00 ton
		45.00	8c whsle. 2.75 retail
		43.20	2.75

TABLE 2.—SUMMARY OF WAGES PAID TO STORAGEMEN, ROUTEMEN AND ENGINEERS IN CANADIAN CITIES

Location of Companies	Storagemen Rate of Pay	Hrs. worked per week	Tankmen Hourly Rate	Hrs. worked per week	Engineers Hourly Rate	Hrs. worked per week
West Coast	$200 Mo.	44	$225.00 Mo.	44	$260.00 Mo.	44
	1.18 hr.	44	1.18 hr.	44	260.00 Mo.	44
Prairie Prov.	1.05 hr.	44	1.05 hr.	44	1.35 hr.	44
	.90 hr.	48	.90 hr.	48	1.10 hr.	48
Ontario	-	-	-	-	50.00 wk.	48
	-	-	-	-	.95 hr.	50
	-	-	-	-	-	-
	-	-	.85 & .90 hr.	48	50.00 wk.	48
	40.00 wk.	48	-	-	-	-
	.90 hr.	48	.90 hr.	48	1.10 hr.	48
	1.15 hr.	44	-	-	-	-
	1.05 hr.	45	50.00 wk.	45	$55. to $65. wk.	48
	-	-	.90 hr.	48	-	-
	1.10 hr.	48	-	-	4th 1.30 hr. 3rd 1.60 hr.	48
	1.03 hr.	$45 wk. plus 3 hrs. @ 1½	1.03 hr.	$45 wk. plus 3 hrs. @ 1½	1.40 hr.	44
	$50. to 52. wk.	48	45.00 wk.	48	chief 82.00 wk. night 64.00 wk. 3rd 51.00 wk.	56
	1.17 hr.	44	1.17 hr.	44	1.35 hr.	44
Quebec	.85 hr.	56	.85 hr.	56	1.00 hr.	56
	36.00 wk.	66	36.00 wk.	66	46.00 wk.	66
	42.00 wk.	56	45.00 wk.	56	1.10 to 1.35 hr.	48
Maritimes	.70 hr.	54	.70 hr.	54	.80 hr.	54
	.90 hr.	48	45.00 wk.	48	-	-
	40.00 wk.	48	43.20 wk.	48	-	-

Reports from Unit Ice Associations

New England Ice Association

RAYMOND T. WILBER, Secretary

THE FALL meeting of the New England Ice Association was held at the Kenmore Hotel, Thursday, December 11, 1952, and proved to be one of the finest meetings in some time. The program was built on the round-table idea with members of the industry and some suppliers being participants, with no outside speakers.

Wayne Cutler led a very interesting discussion on the success of vending machines, which eventually involved participation of everyone present. Wayne reported that the three vendors they have installed have proved very satisfactory. Metropolitan Ice also reported on their experiences with vendors. George Voter told of some of the installations made by the vending machine company he represents. From the reports, it would seem that vending machines properly located do a very good job and pay good profits.

Another subject that brought out a very lively discussion was that of party ice, ice bowls and carvings. Ed Kenney, who has been a developer of this type of work, told how they had used this means of getting excellent publicity, as well as good profits on sales. As Ed remarked, such sales will not take a company out of the red, but it does create good will and a good profit. Warren Pierce of Harwichport, Red River Ice Company, has also done a great deal of this work, his biggest season being vacation time. The Rhode Island Ice Company had been doing a good job on bowls and carvings. There is no doubt but what this part of the ice business, if properly developed and properly handled, would not only afford dramatic publicity for the industry, but would pay a good profit if reasonable prices are secured.

Board Meeting

Following lunch, the session reconvened with a meeting of the Board of Directors. Those other than Board members who were present were invited to remain. For some weeks, a committee appointed by President Hogan had been considering a new system of dues. Up until this year, bills sent to members, outside of associate members, carried no amount. Each company was supposed to send in a check for $1.00 per ton plant capacity. Such a system has not worked impartially and was not good business practice. The committee, composed of the treasurer, Charles Larsen; Past President Carroll Thacher and director Warren Pierce, recommended a scale of annual dues from $15 to $40 depending upon size of plant, $10 for dealers who purchase from other plants and $15 for industry suppliers. This schedule was accepted by the Board.

The Board also voted to hold the next general meeting in early April and to continue the same type of round-table meeting. If the interest shown in the last two meetings is any indication, there should be an exceptionally large attendance.

After completing the Board meeting, President Hogan called on some of the industry suppliers who were present. They each gave a brief report of conditions in the industry as they saw them.

General Discussion

General discussion then included plant economy and sanitation in delivery, followed by power rates and power consumption. Several helpful suggestions were made as to how consumption of power could be reduced. Power rates have risen to such a point that it is becoming the biggest factor in the manufacture of ice, and prices of ice have not gone up accordingly. Sanitation, both at the plant and in delivery, is always a problem. Instances were cited of state health inspection made on a member's dip tank. Even the member was embarrassed by the result. The ice delivered in some paper bags did not pass inspection, due to a chemical action between the ice and the paper. Continuous care must be exercised.

Another subject discussed was the possible uses of ice plants for other purposes during the off season. Clark Bennett pointed out the steady increased demand for frozen food storage, both wholesale and retail. Apple storage was another possibility. One plant has converted part of its storage into an ice cream plant and is manufacturing and delivering ice cream and doing a good business. However, there does not seem to be many things that a storage room can be used for, just for the winter. Frozen foods and lockers are a year-around affair. Meat and corn icing were touched on briefly. Wayne Cutler seems to be the leader in meat icing and is having very pleasing results to date.

Georgia Ice Manufacturers Association

R. W. FLORRID, Secy.-Treas.

THE Georgia Ice Manufacturers Association together with Southern Ice Exchange is planning the greatest convention they have ever had, one that we feel sure will attract the largest number of ice men that has ever attended a local convention. It will be held at the Ansley Hotel, Atlanta, Ga., February 24 and 25.

We have arranged for the most informative speakers available and have an actual demonstration on how to ice a meat case by a large market operator as well as have him give his views on how meat on ice has aided his business.

A tea and fashion show has been arranged for the ladies and the floor show at the banquet will be out of this world.

This past year has been one of the best years for ice men in the Southeast. We feel sure that it will prove most profitable for every ice company to be represented at this convention.

Eastern States Ice Association

GORDON T. WILSON

AT A MEETING of the Board of Directors held in Philadelphia on December 9, 1952, Gordon T. Wilson was elected secretary and treasurer of the Eastern States Ice Association to replace Robert Wilson, who has left the ice industry to take a position in the sales department of the Yale and Towne Manufacturing Company.

A convention committee with Charles Hoffberger as chairman was appointed and the annual meeting which will be held jointly with the Virginia Ice Manufacturers Association will be held at the Hotel Chamberlin at Old Point Comfort, Va., April 9 and 10, 1953.

Walton New Vice-President Indiana Trade Executives

THE Indiana State Trade Executives Association has announced the election of Robert W. Walton, executive secretary of the Indiana Association of Ice Industries, to the office of vice-president of that group. This Association is an organization made up of trade association executives functioning in the behalf of trade associations in Indiana.

Ohio Association Streamlined Convention Merchandising Ideas Explored

THE 1953 convention of the Ohio Association of Ice Industries was streamlined, with two business sessions and the annual banquet and floor show. It was held at the Deshler-Wallick hotel, Columbus, January 16 and 17. The first session held Friday afternoon was used for convention business. The second session Saturday morning covered committee reports, reports from the National Association, and a panel discussion of new business opportunities.

Selling Anhydrous Ammonia

A new merchandising angle for ice plants, particularly those located in farming areas, was suggested by Morgan G. Williams, Union Service Corp., Columbus, the selling of anhydrous ammonia for use as fertilizer on farms.

Mr. Williams explained that his company became interested in this about four years ago and, through contacts with the U. S. Agricultural Department, the Ohio Agricultural Experiment Station, and Agricultural groups, they had established a very satisfactory and growing side line to their ice business. The need of anhydrous ammonia for such use is the fact that soil that has been cultivated over a period of years becomes depleted of nitrogen, and application of anhydrous ammonia will replace this nitrogren. It is applied in liquid form, a specified amount per acre, depending upon the soil and the crop to be grown. In general it requires about 75 to 100 pounds per acre, although this depends upon the condition of the soil and the crop to be grown.

The ice company is primarily a distributor, leaving to applicators the business of applying it to the soil, although the Union Ice Company does do some applying on an experimental and research basis. The usual method is to hitch a tractor to a special applicator with a tank which feeds the liquid ammonia into the soil. Other equipment needed by a company supplying this service includes storage tanks and a tank truck.

Soils treated by this process have shown amazing increase in fertility, according to Mr. Williams. It offers a big business field because of the demand for increased agricultural production and, from publicity issued by the U. S. Agricultural Department and State Experiment Stations farmers are well informed as to its application and results.

Opening Session

The convention was opened by President Gilbert B. Bush Jr. immediately following a group luncheon Friday. Mr. Bush welcomed the members of the Association and visitors and briefly outlined the program. Hhe was followed by Wm. R. Sneed who called the roll and introduced the exhibitors and associate members. A tribute of appreciation was expressed to Stuart A. Muenter, past president by Walter B. Blessman, who presented him with a plaque.

Safety Committee

R. H. Smith, chairman of the Safety Committee, reported that the committee had continued its work, with renewed emphasis on the personal responsibility of employers. It is necessary, he said, that those who appreciate the importance of safety, work conscientiously and do what they can to improve their own records to make up for those who do not take it seriously. No plan, he said, can be fully successful unless all members of the group participate. This is especially important now he said in view of the fact that the safety record of Ohio companies has been going down, both in frequency and in severity.

He then presented safety plaques to three Ohio ice companies for their favorable safety record the past year. They had earned these awards, he said, by their interest and participation. They were as follows:

Class A: City Products, Marion, Ohio.

Class B: City Products, Dayton, Ohio.

Class C: Lorain Crystal Ice Co., Lorain, Ohio.

Reports of Officers

Mr. Bush presented the annual report of the president, basing it on the theme that ambition will get what anyone wants, but the trouble is that most people do not have the energy. In any group such as the Ohio Association, he said, there are individual desires, but by merging their interests and by recognizing an inevitable diversity of opinions, a program beneficial to the entire group can be worked out. Through the combined efforts of Ohio ice men over a long period of years, he said, one of the best associations in the country had developed. By combining the ambitions of all, we can go on to more accomplishments, if we will only use the necessary energy, he concluded.

Miss Elizabeth Shannon presented the report of the secretary-treasurer. Detailed receipts and expenses were itemized, showing that the association had not only operated within its budget during the past year, but had overcome a small deficit from the previous year. She then reviewed briefly the accomplishments of the association during the past year.

North Central Group

R. H. Smith of Willard, Ohio gave an interesting talk on the North Central Ohio Ice Group, which was formed in 1932, primarily as a social group, made up of ice executives from Bucyrus, Mt. Vernon, Mt. Gilead, Tiffin, Willard, Norwalk, Ashland, Wooster, Shelby and Mansfield. The group has continued to hold monthly meetings since it was organized, with a social hour, followed by a dinner and then two hours of informal discussions pertaining to the ice business. The record of this group, he suggested, could be an incentive for other similar groups to be organized within the Ohio ice industry.

Annual Banquet

The annual dinner was held Friday evening in the Hall of Mirrors of the hotel. Dinner music was furnished by an orchestra, followed by a talk by Wayne E. Laibe of Lima on hypnotism, its theoretical and practical aspects and its application to sales psychology.

Final Session

Committee reports were presented and new directors were elected at the final session Saturday morning. Accepting the report of the Nominating Committee, the following members were elected to the Board of Directors: George Curtain, Circleville; Karl Beachy, Toledo; C. H. Boardman, Jr. Columbus.

National Achievements

Guy W. Jacobs, secretary of the National Association of Ice Industries, reporting on the work of the association said that during its 36 years it had many accomplishments to its credit and is now stronger and offers a better program than ever before. The various merchandising activities pointed toward selling ice for new uses, for instance, have been very successful in increasing tonnage for many ice companies.

The new meat on ice program, he said, is selling a lot of ice. Vended ice meets a popular appeal; vegetable icing and the new channel icing is increasing in popularity and resulting in increased sales of ice; more and more ice is being sold in paper bags; hydro cooling of peaches is another new and growing market. Among the newer developments are machines for manufacture of crushed and sized ice and cubes, and "tube ice," mentioned in a recent issue of ICE AND REFRIGERATION, now in the process of being developed.

There still remains some restrictions on construction materials, but so far ice plants have not been seriously affected. One important accomplishment had been the decontrol of ice prices. Some unfavorable publicity had, as usual, been answered and counteracted. Credit for these accomplishments was due the National Association, but it had to have the backing of members of the industry and the unit associations. Active participation in the National Association and in the Unit Associations he said was the best insurance available to any ice company.

Touching briefly on the question of sanitary ice, he said health officers all over the country are alive to the situation created by a recent report from Kansas. To meet this condition, he said, all ice distributors must take extra precautions to provide all their customers with perfectly clean and sanitary ice.

Profits Through Merchandising

F. X. Timmons, advertising and publicity director of the National Association, presented a more detailed report on the national advertising and publicity program. In absence of a national advertising program, they had turned to publicity articles in newspapers and magazines and programs on the radio and television as a supplement to trade paper advertising which is carried on the year round. This publicity is valuable, he said, because it reflects the opinion of newspaper and magazine editors and radio and television program directors as to the importance of the information developed. It will not however accomplish as good results in immediate returns as will advertising, which is covered in the trade publications covering the grocery, beverage-restaurant, and growers and shippers group with 22 publications and total circulation of more than six million readers. These 22 publications, he pointed out, cover all phases of commercial ice uses.

Mr. Timmons presented a vivid picture of the growing American market which included a net gain of 7,062 every day, and that by 1960 the total population will be 171 million, 21½ million more than now. School children enrolled in public schools are increasing at the rate of about 600,000 a year. Approximately a million and a half couples are married each year.

Growing Market

It is in this young married group, age 20-35 that the ice industry will find its best market. They have no preconceived ideas about ice, they are unaware of the drip pan, they do not remember the depression, the trend is toward entertaining in the home, they like to do things together such as parties and picnics. This all leads to the fact that they are wide open to the sales story of ice, and the energetic ice company should be able to build sales outlets among that

Based upon these facts Mr. Timmons suggested a survey of local markets brought up to date each year showing total population, retail sales, income groups, shopping centers, grocery stores, meat markets, fish and poultry markets, restaurants, special prospects. With such an analysis the ice man can know what he can expect from the market and plan accordingly.

He then described briefly the merchandising aids available from the National Association, including bulletins on meat on ice, trade paper advertising and others.

Panel Discussion

The session closed with an interesting and instructive panel discussion of vegetable icing, fish and poultry icing, meat icing, corn icing and specialty ice. The panel was directed by Jack Whitlock, Marion, and discussions of the various subjects were presented by Dick Fischer, Steubenville; Stuart Muenter, Tiffin; James Boardman, Columbus.

In his opening remarks Mr. Whitlock said the ice business needs to attract more young men. It is a good business, he said, and offers opportunities for advancement in line with other industries. The use of ice for special purposes such as vegetable icing, meat on ice, fish and poultry ice, corn icing, it was pointed out by other speakers on the panel, no longer can be classed as strictly new, but they all do provide a growing market and offer a wide field for increased tonnage.

Officers Elected

At the annual meeting of the board of directors following adjournment of the convention officers and directors were elected for the coming year. group.

The Ice Industry

Battery Additive New Sideline for Ice Plant

ENTERING its second half century of business, Random Ice & Coal Co., Milwaukee, Wis., is intensifying on a product far removed from ice or coal.

Somewhat over a year ago Random Ice & Coal under the management of Paul Hoff, became the Wisconsin distributor for a battery additive, known as AD-X2, made by Pioneers, Inc., Oakland, Calif. The additive is designed to reduce the formation of lead sulfate on the lead plates of batteries and thus increase the life of the battery.

"The way things are going, about 25 percent of Random's total sales will be in the battery additive this year," said Mr. Hoff. "We have seven people employed in the battery department now. Additive sales may in time exceed our ice sales. We certainly have room in the building to expand the battery department.

Mr. Hoff said that because of the adverse reports on AD-X2, he and his brothers felt that the only way to prove the product was through the battery shop. He produced a long list of Milwaukee firms and government agencies which use the additive and have batteries overhauled by Random.

Ice Man Tells Canadian Grocers About Meat on Ice

THE advantages of displaying fresh meat on ice from the point of view of both the retailer and the customer were discussed by John McGoey of the Ranger Ice Co., Kitchener, Ont., at the meat session of the annual convention of the Ontario Foods Division, Retail Merchants' Association of Canada. Mr. McGoey, a director and member of the Executive Committee of the Canadian Association of Ice Industries, spoke as a representative of the ice industry.

He then recalled that the idea had been in practical use in Syracuse, N. Y., for 20 years, but it was only when the National Association of Ice Industries put its Research Department to work on the project that it really began to take hold. Since then, he said, the experience of many ice men had shown that meat on ice really works.

Mr. McGoey's complete talk was published in the November issue of The Retail Grocer, published in Ontario, Canada. He referred to the research work done at the University of California which had shown the benefits of using ice in fresh meat cases and supplemented this with descriptions of actual results in meat markets.

Florida Ice Association Engineering Short Course

IN RESPONSE to many requests the Florida Ice Association will sponsor a two day short course for northwest Florida and south Alabama ice plant operators in Panama City, Fla., February 17 and 18, 1953. This is the first time such as opportunity has been brought to ice plant engineers in this section of Florida and it offers them an opportunity to catch up on new refrigeration ideas.

C. T. Baker, consulting engineer of Atlanta, will be on the program and will present a booklet prepared especially for this short course. It will explain problems involving the use of mathematical formulas and defines engineering terminology. All those who complete the course will receive a copy of this booklet.

Automatic Controls

Other high-lights of the program will be a discussion of automatic controls in ice plants by J. M. Barnes, owner of the Barnes Ice Company in Quincy, Chattahoochee and Havana, Fla., and chairman of the Producing Committee of The Florida Ice Association. Mr. Barnes has installed automatic controls in his plants and is in a position to discuss the subject with authority.

Frank Hall, owner of the Hall Machine shop in New Smyrna Beach, Fla., will discuss the operation of compressors.

Russ Penly, manager of the Atlanta branch, National Rejectors Corporation, will tell how to keep the vendor coin device in full time operation. He will tear down and reassemble a coin device, diagram his work on a blackboard and provide a manual to follow.

Ray Lewis, representative of The Henry Boner Ammonia Co., will discuss the behavior of ammonia. He will furnish every enrollee with a booklet that gives ammonia charts and other pertinent facts on the subject.

The Armstrong Cork Company will present an excellent film on the value of proper insulation.

Bert Murray with the Sinclair Oil Company in Pensacola will give a comprehensive and informative talk on "Economy and Efficiency Through Proper Machinery Lubrication."

The president of the Wittichen Chemical Company of Birmingham, Ala., will cover another subject of interest to many plant operators titled: "Brine — How to Handle — Problems in Use."

A representative of the State Board of Health will provide pointers on plant housekeeping and a Safety Engineer will stress the human and dollar importance of safety precautions in the ice plant.

The course will start at 10 a.m. on the morning of February 17 and will end about 3:00 p.m. the following day.

South Carolina Ice Manufacturers

THE annual convention of the South Carolina Ice Manufacturers Association was held at the Fort Sumter Hotel, Charleston, S. C., January 12 and 13. A good attendance was present and an interesting program was offered. Approximately 100 ice men and their wives registered.

Wm. T. Jobe, general counsel of the National Association of Ice Industries, discussed the decontrol of ice prices, an accomplishment of 1952. He also outlined recent developments in research and marketing, and brought to the assembly a message of encouragement and hopes for a brighter future for the ice business.

John H. Lumpkin of Columbia, legal consultant for the South Carolina association, dealt mainly with aspects of the state sales tax as applied to the industry. He also discussed unemployment compensation benefits as they affect a seasonal business such as the manufacture of ice.

The annual banquet held Monday evening was presided over by J. B. Mahoney of Charleston, state president, and the speaker was Arthur M. Field, chief engineer of the Charleston Development Board. Miss Jean Guilfuss entertained with piano selections. Wives of the ice men had a tea Monday afternoon at the historic and charming Marigault House, owned by the Charleston Museum, with E. Milby Burton, director of the Charleston Museum, explaining its history.

Tuesday's program included a talk by Homer H. B. Mask of Columbia on unemployment insurance. A panel discussion on current problems of the industry was directed by President Mahoney, assisted by E. H. Moses, Sumter; B. O. Browder, Kingstree; and G. L. Rosebrock, Charleston.

The convention concluded with a luncheon held in the Terrace dining room of the Sumter Hotel.

Officers

At the final session officers for the coming year were elected as follows:

lows:

President, E. L. Lowie, Hampton, S. C.

Vice-president, G. L. Rosebrock, Charleston, S. C.

Secretary, Miss Margaret Kinder, Kingstree, S. C.

Treasurer, E. T. Gladden, Columbia, S. C.

Directors: J. B. Mahoney, Charleston; Ralph Griffin, Columbia; D. M. Howell, Greensboro; B. O. Browder, Kingstree; M. R. Sanders, Ocean Driver; L. D. Danforth, Columbia; E. H. Moses, Jr., Sumter; Bill Crossfield, Greenville; John T. Langston, Darlington.

Northwest Association Of Ice Industries

L. F. MARSH, Secretary

RIGHT now plans are shaping up for the coming convention of the Northwest Association to be held at Empress Hotel, Victoria B. C. March 25-6-7. It is going to be a convention that no one in the Ice business can afford to miss, with an interesting program based on current problems.

Victoria and the Empress Hotel provide a setting for a convention that is unsurpassed by any place. There is something about the quaint restful difference of Victoria, that sets it apart from ordinary places. The trip there, whether by boat or by auto is the most beautiful and enjoyable even in this wonderfully scenic Northwest. The dates March 25-6-7 are ideal for a spring vacation.

One of the biggest advantages of association membership is that every member has a chance to take advantage of the experience of every other member, they can adapt these experiences of the other fellow to their own operations and many times save themselves costly mistakes in some phase of their operation. Nothing pays as big a return for the few dollars invested as membership in the Association of Ice Industries.

One of the direct returns is in the combined purchase of paper bags for sized ice. The Northwest Association has made this a regular feature for the past few years, providing savings that more than pay the membership dues. Another combined order for these bags is in the planning for this spring.

The year 1952 was a good one for the ice industry in this Northwest. Those companies that made any effort to keep abreast of the times and provided service to the buying public found it a profitable year. There is every indication that 1953 will be an even more profitable year to those who are prepared to cash in on the possibilities presented by 1953 conditions.

Practical Refrigerating Engineer

NATIONAL ASSOCIATION PRACTICAL REFRIGERATING ENGINEERS

NEWS

OPERATING

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QUESTIONS -- ANSWERS

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435 North Waller Avenue
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THIS MONTH

A message to officers, committeemen, and members of the NAPRE from President Alvis J. Clay tells what the Association offers them and solicits their cooperation in plans to make for a better organization in 1953.

Specific features required by an air conditioning system if it is to operate successfully are discussed and described by a licensed professional engineer.

Reports from chapters indicate information programs at chapter meetings and a growing interest in all chapter activities.

To Officers, Committeemen and Members —A Message from the President

THE National Association Practical Refrigerating Engineers offers its services to further your education in the art and science of refrigeration. As you know, the association has the ability, capacity and desire to help those members who are anxious to help themselves improve. Therefore, I urge each member to tell others who should belong, what we have to offer.

I realize that I am not able to fill these shoes of president, alone. From where I stand I can see room for each one of you to help me fill them to their capacity. May I ask each member to talk about NAPRE, talk about our educational program, invite prospective members to a meeting, and then all there can help bring this prospect in as a member.

Our Educational Committee will continue with their excellent work in the Question Box of ICE AND REFRIGERATION. They will also work with chapters on their educational program built around the King Book, "Basic Refrigeration."

The Membership Committee is organizing and will be laying before all chapters, the most powerful membership drive ever developed. Membership is another of our main objectives and we all have a definite part to play in it.

A Chapters' Activities Committee has been set up and they will assist with suggestions on how to coordinate activities within the chapters, with special emphasis on education, membership and social activities.

I trust all will benefit by the material you now have, and will receive from the association during the year. We welcome your comments, criticisms or suggestions on the services provided to chapters and the members-at-large by our association.

May I suggest that when you are able, you support the operating data book by buying supplies and materials from those suppliers who advertise in it. Also, solicit advertising for the operating data book when you have an opportunity.

I ask that each member consider himself a committee of one to bring in that new member. Tell industry and management what we have to offer and attend all meetings of your chapter. Tell everyone about the best association in the world.

I trust that each of you will carry out your duties, help plan and carry out those plans on both the National and Chapter levels, that will make for a better NAPRE in 1953.

—ALVIS J. CLAY, PRESIDENT

The New President

UNANIMOUS choice of the delegates at the 43rd annual convention of the N.A.P.R.E. was Alvis J. Clay, Memphis, Tenn. A member of N.A.P.R.E. since 1935, the 44th president is a native of Pontotoc, Mississippi. He is past president of Tennessee Chapter No. 1, Memphis, and presently the Educational Chairman for his Chapter. He has been a director and vice-president of N.A.P.R.E. for half a decade.

Alvis J. Clay, Memphis, Tenn.

Born on September 19, 1905, President Clay completed his primary education, graduated from high school and then entered a two-year course at Chickasaw Business Col-

lege. In 1925 he started operating in the Claridge Hotel at Memphis. The Wm. Penn Hotel officials appointed him chief engineer in 1932. He is at present smoke, boiler and refrigeration inspector for the City of Memphis, a position which he has held since 1941.

Mr. Clay is married and father of a son 10 years of age. Active in civic affairs, the new N.A.P.R.E. President is a member of the Board of Examiners, City of Memphis, and first vice-president of the Springdale Civic Club. He attends the Baptist Church and has acquired the 32nd degree in the Scottish Rite of the Masonic order.

Brother Clay's engineering interests have not been limited to N.A.P.R.E. He is now president of Local 92, International Union of Operating Engineers, of which he has been a member since 1941. He has contributed papers and lectures on engineering subjects before both groups. His work, "Combustion—A Review of the Fundamentals," was published in the November 1947 issue of ICE AND REFRIGERATION.

Choosing An Adequate Air Conditioning System

E. R. HALLOWELL
Dallas, Tex.

The following paper was read at the forty-third annual convention of the National Association Practical Refrigeration Engineers at Dallas, in November, 1952. Mr. Hallowell is a national director of NAPRE, the designer of Alford's Refrigerated Warehouses, Dallas, and currently chief engineer for Snell Refrigeration, Dallas. He is a licensed professional engineer and a member of ASRE and ASH&VE.

AIR conditioning may be defined as the simultaneous control of air temperature, humidity and motion. These three factors should be kept in mind when choosing an air conditioning system. It is the purpose of this paper to evaluate several different types of air conditioning systems from the standpoint of cost, results and type suited for the job. Since there are infinite variations of air conditioning systems, only general catagories can be discussed and no attempt is being made at specific recommendations but rather at an overall picture as a guide to the type of system to be used considering first cost, operating cost and other pertinent data.

Cost of Equipment

In the selection of a proper system, there are three points of prime concern to the owner. The first point is the first cost of the equipment. This should be influenced by the other two points which are maintenance cost and operating cost. Too often the matter of first cost is given prime importance and the other two points ignored. This results in a cheaply installed job that can be very expensive to maintain and costly to operate. It is regrettable that very little has been said or done in the air conditioning field to acquaint the owner with the possible operating cost, maintenance and expense of his prospective system.

Low dollar first cost is quite often the deciding figure in an installation, particularly in residential and smaller commercial jobs. This low cost is often achieved by undersized cooling towers, small condensers and other economies that materially increase operating cost and provide opportunities for expensive maintenance and repair bills. It will probably take a long time and hard work to rectify this condition and it is not the purpose of this paper to suggest a solution but rather to point out the conditions surrounding the use of various systems.

It is assumed that you as competent operating engineers will be able to distinguish whether a system is adequate from a refrigeration operating standpoint or not. Aside from cost considerations of adequate equipment, there are differences of first cost in the type of system chosen with regard to the results desired and needed. The following discussion has to do with this phase of air conditioning. Three types of conditioning will be discussed; the small or residential system, the small commercial system such as used in a small shop, and the large industrial and commercial types such as used in large stores, office buildings and industrial uses.

Residential Systems

A large and rapidly growing field of air conditioning is the residential installation. More and more homes are being equipped with summer and winter air conditioning. This is particularly true in the hotter sections of the country. The conditions in this field have been somewhat chaotic due to the fact that it has appealed to a very large group of installers; competition has been very keen and there are very few standards to follow. Installation results have varied greatly and costs of installation have varied tremendously. The installing company has usually done it's own engineering rather than employ a consulting engineer. This resulted in some excellent jobs where the installer was a competent engineer and in some very indifferent jobs where competent engineering was not utilized in design.

Window Unit Type

For the residential owner of limited means, the self contained window type unit offers a considerable amount of cooling at a nominal cost. These units contain the complete refrigeration cycle with an air cooled condenser and the refrigeration circuit and blower. They are mounted with the refrigeration highside equipment on the outside and the lowside equipment inside the window. They are usually plugged in to a convenient outlet and controlled by a switch mounted on the unit itself.

Although they are made to operate on regular house voltages, it is usually necessary on three-quarter horsepower units and above to run separate circuits to the units in order to provide minimum voltage drop in the supply lines to the unit and to not overload existing house circuits. Since these units are installed directly in the room they serve, it is possible to spot cool one or more rooms in a residence and limit the amount of tonnage in a job. This provides a means of cooling a small area at a reasonable first cost and to achieve a measure of comfort.

Operating costs are somewhat higher per ton than with larger systems employing larger highside equipment but since an entire house is rarely cooled with window units the total operating cost of cooling two or three rooms may be lower than that of cooling the entire house.

Many of these units provide no other control than that of switching them on or off manually as desired. Others provide a thermostat that controls compressor operation. In these units, temperature may be controlled by a thermostat, humidity is controlled only by the design conditions of the coil and air motion is dependent on the location of the unit in the room since duct work is not used normally with these units.

Package Type Unit

A second method of residential cooling is the package type unit usually located at a central point with duct work leading to various rooms of the house. These package units consist of the refrigeration compressor and highside, the lowside coil and blower all housed in one cabinet. A cooling tower is usually used with these units to achieve more efficient operation. First cost is, of course, somewhat higher than that of the smaller individual window units but there are certain advantages.

The main unit is usually concealed and no space is required in individual rooms. The operating noise level is usually less and a much better control of air distribution may be achieved. These units are usually put in combination with the heating system utilizing the same duct work for heating and cooling. Temperature control is usually from a thermostat located in one of the conditioned rooms.

On units employing one compressor there is no adequate humidity control and humidity may build up in the conditioned space during the compressor off cycle. This is usually compensated, in part, by operating the system at a lower dry bulb temperature to offset the effects of the humidity build up. This results in somewhat higher operating cost. Some package units employ more than one compressor with a step thermostat. This gives a better measure of control and with each compressor operating on it's own coil tends to hold a more even humidity control although some build up can still occur from the re-evaporation of the moisture from the non-operating coil.

Another variation of residence cooling is the location of the compressor and highside equipment in an adjoining garage, basement or other remote location with a separate air handling unit. This system has certain advantages and, if capacity control is available on the compressor, face and bypass dampers can be used for control to give adequate temperature and humidity control.

Probably the best results for the larger residence may be obtained by the use of a central water chilling system and utilizing chilled water circulating to the air handling unit or units. Coils are more efficient with chilled water when properly circuited than with direct expansion; face and bypass dampers may be employed without danger of coil freeze up and units may be placed where needed. Great variation may be used in air handlers, as the situation dictates. Central units with duct work are often used from a single unit to the use of several in various zones for more accurate control. Single small chilled water units may be used in some instances in individual rooms. The chilled water system has great flexibility and control of air conditions is simplified.

Small Commercial Systems

The small store or other single area usually lends itself well to the package type unit. Loads on these areas are usually rather constant which allows the equipment to operate for long intervals without too much shut down time and conditions are usually good. First cost is within reason. In smaller installations, duct work is sometimes eliminated, the air being discharged directly from the air unit itself. In larger stores, distribution duct work is often necessary. Multiple package units are sometimes employed in large single areas because of lowered first cost and can produce good results. Operating costs may be somewhat higher and maintenance also may run higher than on a single built-up system.

Large Installations

In large installations with multiple floors operating costs, maintenance cost and first cost all assume importance and should all be considered carefully along with the results desired from the system installed. There are so many variations of design in this type of system that no attempt will be made to weigh one against the other but to give advantages and disadvantages of general types.

In moderate sized installations, a central refrigeration system is sometimes employed utilizing one or more direct expansion air handlers placed as needed. This system has the advantage of a low first cost in many instances. However, this is not always true when several areas are to be served since air handlers are usually kept at a minimum and thus extensive duct work is required. Also the remote air handlers present some operational problems and there is an

ever present possibility of refrigerant leaks going undetected where refrigerant lines are installed over a considerable area. Even with multiple compressors, control of such a system is somewhat of a problem.

By far the most common type of large system in general use is the central water chilling system which circulates chilled water to the various areas being cooled. On large installations multiple compressors are used or adequate means of capacity control are utilized. A constant source of cold water is thus available at the air handling units and control is simplified.

In multi-storied buildings and multi-use buildings, single air handlers may be used for each zone with their individual control or the newer multizone units may be used for several zones. Individual room units on chilled water may be used, especially when placed in existing buildings where duct work is difficult to run. Primary fresh air is sometimes used from a central unit in combination with small individual recirculating units. Variations are indefinite and depend on each individual installation. Adequate engineering should always be used in the selection of a large system.

Specific Points

Because of the fact that air conditioning is used in so many widely varying ways, it is difficult to be specific as to what is the best system since so much depends on the location, results desired and many other factors. The foregoing is of necessity rather general in nature. There are, however, a few specific things that may be stressed that are common to any system.

Refrigeration should be of adequate size and should be a balanced system. Too many times the refrigeration system is considered a necessary evil attendant to the operation of the air conditioning. Very little thought is given to design or installation with the result that a system that is adequate from the air handling standpoint fails because of inadequate refrigeration. Compressor capacity should be balanced against the condenser and cooling tower or whatever highside system is used. If the highside is short, high operating costs will result as well as undue wear on refrigeration equipment. A few extra dollars invested in the high side will pay good dividends in lowered operating and repair costs.

Adequate engineering experience should be obtained for both the air side and the refrigeration side. Low side should be balanced to the refrigeration equipment. A too small lowside means higher temperature differences which can only mean that the operating cost per ton of refrigeration will be higher due to lower refrigerant temperatures or that the system will be inadequate through lowered capacity of the refrigeration equipment. Be sure that the contractor has adequate engineering skill or that a competent engineer is employed. Air conditioning requires skilled design to produce adequate results. This knowledge can only be obtained by a thorough knowledge of the under-lying principles and practical experience. Both are necessary and one is no good without the other.

Adequate Space

Maintenance of equipment is important and repairs are costly. Insist on adequate space for the installation of equipment. Leave sufficient space to adequately service mechanical equipment. The relatively small saving in space made by crowding equipment today may cause very costly repairs at a later date. Crowding of equipment seems to be particularly prevalent in air conditioning installations as the owner is often very reluctant to give up space for the equipment. If you are working in his interests, it is well to insist that adequate space be given.

As operating engineers, you should be insistent also on adequate valves in refrigerant and water lines to service the equipment. Too often jobs are put in with a minimum of service valves so that an entire system must be shut down to repair a small leak which could have been easily isolated from the main system for repair by the installation of a few service valves.

Conclusion

In conclusion it may be said that in choosing an air conditioning system, adequate engineering advice should be heeded. It is well to know the background and experience of the installing company. An air conditioning system should not be chosen from the first cost involved but rather from a study of the first cost plus possible operating cost and maintenance costs.

N A P R E
Question Box

H. G. Venemann, Professor of Refrigeration, Purdue University and chairman of NAPRE Educational Committee, answers members operating probems monthly in this column. Send questions to Chairman H. G. Venemann c/o Purdue University, West Lafayette, Indiana.

More on Question 941 (January Issue).

pH Values

Question No. 941: I've just taken over a job as operator of a refrigeration plant. With no chemical background and little academic or engineering education, I find I'm lost on such references as pH values. What is meant by that term? And what pH number is proper for my condensing water? I have a tower for cooling purposes.—D. F. K.

ANSWER No. 2: I have read question No. 941 from D.F.K. regarding chemical terms and especially explanation of pH value. I generally explain pH to the average operating man as the relative acidity or alkalinity of a material. A pH of 7 is neutral. Numbers above this represent the degree of alkalinity and those below the degree of acidity. I find that this simple explanation is about all they need to know and do not burden them with any technical explanation.

As to the value of pH he should carry in his condensing water, this may be subject to considerable variation. In the past we have thought that a pH of 7.5 to 8.0 was generally applicable. However, recently a trend to lower pH of the order of 6.0 to 6.5 is noted. So many variables are encountered that it would not be fair to him to state any definite value.

If D.F.K. will write me stating his set up in detail, I will try and supply some general instructions. — BILL WRIGHT, St. Louis Chapter.

De-Icing Water Tower

Question No. 943: We have a 300-ton Marley induced draft cooling tower on the roof of our plant. It is equipped with a single two speed fan. The water is distributed through the tower from a flooded pan at the top with the water feeding through velox nozzles in the bottom of the pan. Each year we experience considerable difficulty with icing. What practices are generally followed in the industry to prevent icing?—J. N.

ANSWER: One of our plants is equipped with a tower which we believe to be the same as yours. In the wintertime we run the fan motor at half speed. We replace the nozzles with plugs in four rows on each side. We also close in the top section of louvres on two sides with heavy tar paper, leaving the bottom five rows of louvres exposed. These five rows are covered with an arrangement of canvas which can be rolled up or down to suit the weather. By running the fan at half speed and blanketing off the air passage with the tar paper and canvas we regulate the amount of air through the tower thus preventing icing to any serious extent. Our idea was arrived at hit or miss and we regulated according to the weather conditions.—B.C.M.

Income Tax

Question No. 944: One interesting question has arisen in our assessment of income tax.

They have made a formula to calculate the total production, that is 4 units of electricity makes one block of 1½ maunds or 102 lbs. and by multiplying they make 300 lbs. cans on the same base. As they are not practical engineers, they press on this point.

Being an engineer, I argue that this is wrong so I am referring this question to you.

1. 1¼ maunds can take much less time to freeze than 4 maunds or 300 lbs. weight per weight.

2. The weather plays an important role in the production especially in Punjab where there is a long rainy season and no sale of ice while the plant runs to maintain the temperature.

3. Machines are of different capacities and of speeds, high speed, low speed, some are flat belt driven, some are V belts, thirdly direct coupled and some are on counter shafts.

4. Different types of condensers and the degree of water on them.

5. Due to the larger number of ice factories here there is much competition which fluctuates the sale of ice. Even then the plant has to run to maintain the temperature.

In the light of these and other points, what is your expert opinion on the indefiniteness of forming any correct formula.—President Ice Manufacturers Association, Lahore.

NOTE: This question was referred to several prominent members of the

N.A.P.R.E. and because of its complexities and uncertainties we have thought it advisable to publish all of the answers:

ANSWER No. 1: The officers of NAPRE certainly agree with you that no fixed formula should be used in calculating production costs in connection with ice manufacture.

As you indicate in your letter, if the unit of cost is a certain amount for a small block or can (maunds), then the unit of cost for a larger block or can cannot be a multiple of the same cost. The time and cost to freeze through the larger block is not directly proportional to the time and cost involved in freezing the small block. Freezing larger blocks would involve an increasing variable of time and cost.

It is doubtful that any fixed formula could be compiled which would take into account machinery characteristics, condition of repair or operating practices. Again type of condensers and inlet water temperature play an important part in the unit costs of production.

Weather, temperature and humidity affect the operation of your plant and indirectly the cost of production, not to mention that the weather and competitive practices affect a number of days of marketing against a number of days of storage. Storage, again, is another variable unit of cost in your production.

We sincerely hope that our opinions given above will be helpful to you in your explanations to the tax assessor in your locality. You may be able to use Table III, Page 75, "Practical Ice Making" by Authenreith & Brandt, Nickerson & Collins Co., Publishers, to support your arguments.—A. R. CARLSON, Pres., '52.

ANSWER No. 2: These remarks refer to the letter from the Lahore Ice Factory. I doubt that they are of any value, because the meaning of the original letter is far from clear to me and I am afraid my reply is likely to be just as unintelligible to the man in Lahore.

I may have missed the writer's intent altogether, but I have ventured an answer based on the following interpretation of the question:

Question: The Lahore tax collector has ruled that this ice plant which makes ice in 4-maund blocks can produce approximately 3 times as much ice as another plant which freezes 1¼-maund blocks, and should therefore pay three times as much in taxes. (1) Why is this not a fair basis of assessment? (2) What would be a more reasonable formula?

Answer: (1) The size of the individual block has, of course, no meaning whatsoever with respect to the total capacity of the plant, except when considered together with other factors. The amount of ice that can be made depends not only on the size of the cans, but also on the number of cans installed and the capacity of the freezing machinery. The time required for freezing depends on the thickness of the block and the temperature of the brine tank, and may be computed by the following formula which appears in Motz, Principles of Refrigeration, 3rd Edition, page 386:

$$f.t. = \frac{6.2 \times t^2}{32 - t_b}$$

where

f.t.= freezing time, hours
t^2 = thickness of ice at top of block, inches
t_b = temperature of brine, °F

Thus, a 1¼-maund block (100-lb.) frozen in an 8 × 16 can at 14°F would require

$$f.t. = \frac{6.2 \times 8 \times 8}{32 - 14} = 22 \text{ hours}$$

The number of cans required per ton per day may be computed by another formula given by Motz:

$$N = \frac{2000 \times f.t.}{24 \times W}$$

where

N = number of cans per ton of ice made per day
W = nominal weight of block, lb.

Thus, in the example given above,

$$N = \frac{2000 \times 22}{24 \times 100} = 18.4 \text{ cans per ton}$$

Now, for ice made in 4-maund (300-lb.) cans, 11 × 22, using the same formula,

$$f.t. = \frac{6.2 \times 11 \times 11}{32 - 14} = 41.6 \text{ hours}$$

$$N = \frac{2000 \times 41.6}{24 \times 300} = 11.6 \text{ cans per ton}$$

(2) It would seem that a fair assessment could most easily be made on the basis of some cost or investment factor, such as original investment, present value, or replacement cost. I assume, however, that it is the assessors' intent to base the tax on the income-producing ability of the plant. In such case, actual annual output, nominal capacity, or maximum production rate, could be established as the tax basis. Any one of these factors would be a reasonably reliable index of the tax-paying ability of the property.—K. M. HOLADAY.

ANSWER No. 3: The answers submitted above indicated quite clearly that it is very difficult to derive a correct formula which may be used for taxing purposes. It may be proven very easily that a tax based upon the units of electricity consumed would be illogical regardless of the size of the ice blocks. In any single plant, the consumption of electricity may vary throughout the year from 45 to 90 K.W. hours per ton of ice.

Under comparable conditions of plant size, output and water, a plant using 100 lb. blocks would cost more initially and its cost per ton of ice produced would be greater than a plant using 300 or 400 lb. blocks. Such a plant, if taxed on electric consumption, would be severely handicapped if competing with a plant of similar capacity and output using the larger blocks. While the answers submitted have not given the President, Pakistan Assoc., definite basis for a reasonable tax structure, they have at least given him some good ideas.—H. G. VENEMANN.

Temperature of Ice Storage Room

Question No. 945: I have an ice storage room which I would like to keep at 28 F to 30 F. The dimensions of the room are 17 x 37 x 8 ft. Could you please tell me how many feet of ¾-in. steel coil I'll need if I refrigerate this room with salt brine. My brine temperature will be between 20 F and 25 F. Due to a water situation in this community, I'm unable to use a lower brine temperature and still make clear ice. Also could you tell me the size pump I would need and what type. The brine will have to be pumped approximately 10 feet in height. What size motor would be needed for this pump?

Also would it be possible for you to send me a sketch on the best hookup we could make. I would like to put in a hot water defrost line, too. My present coils are ceiling coils, however, I can add wall coils if necessary.—R. T. S.

ANSWER: I will not attempt to answer all of your questions just as you have asked them, because I fear that you will have an impractical solution if you attempt to use the brine from your ice making tank to cool the ice storage room. However, I will give you some figures so that you can see what you will be up against.

The load on your ice room, provided that it is fairly well insulated with 4 inches of good material on walls, ceiling and floor, will be about 14,600 Btu. per hour when the outside temperature is 98F and the inside temperature is 28F.

The square feet of pipe coil required to maintain this 28 degree

temperature with 20 degree brine will be 910, and with 25 degree brine, it will be 2430 sq. ft. You see that there is a great deal of difference between these two figures.

If you propose to use ¾ inch pipe, you must multiply the above figures by 3.64 in order to get the lineal feet required. For 1 inch pipe, multiply by 2.9; for 1¼ inch pipe, multiply by 2.3. If you used direct expansion ammonia at 20 lbs. back pressure instead of brine, you would require only 317 sq. ft. of pipe coil.

You do not tell me how much coil you now have so I cannot go further toward a solution of your problem. I believe, however, that it would pay you to buy a small 2 ton compressor with 3 horse-power motor to handle your ice storage. This could be automatic in operation and work off of a thermostat.

Further correspondence revealed that this plant operates on Freon with 1500 feet of ¾ inch steel coil.

In your recent letter, you state that you have 1500 feet of ¾ inch steel coil in your ice storage room. This would be sufficient coil to hold your room to 28F with either 5 degree Ammonia or Freon. You will recall that my letter of November 19 stated that you would require 317 sq. ft. of coil if you used direct expansion ammonia at 20 (5F) lbs. back pressure. This would be equivalent to 11.8 p.s.i.g. for Freon 12. The 317 sq. ft. when multiplied by 3.64 corresponds to 1155 lineal feet of ¾ inch pipe.

The size machine I specified, 2 tons at 11.8 pounds suction pressure, with 3 horsepower motor, should do the job nicely, regardless of whether you used Freon 12 or Ammonia.—H.G.V.

New Questions

Question No. 946: Do ammonia shut-off valves have pressure drops similar to other globe valves? For example, the familiar Crane Company fitting chart shows a wide open 3 inch globe valve having a resistance to flow equivalent to 80 feet of 3 inch pipe. Does this hold for a wide open ammonia valve?—G. E. G.

Question No. 947: How much salt would have to be put in a 70,000 gallon water tank to keep it from rupture by freezing? Or better, let me give you the problem where we have an elevated steel tank to be taken out of service for two to three years. How can it be protected during that time?—G. E. G.

Question No. 948: In our two stage ammonia system, we find that after a shut down of say 4 to 8 hours, that ammonia gas condenses in the discharge line leading to the condensers, runs back down the line to the discharge valve on the second stage compressor, causing liquid ammonia to drop down into the compressor when starting up. We have an unusual condition in that the discharge line to the condensers is extremely long. How can this be corrected?—James R. Bennett, Wash. Chap. No. 1.

News Notes and Chapter Activities

Los Angeles

FRED HERR

LOS ANGELES CHAPTER inaugurated its program for the new year with a session designated as "Get Going Night for 1953" held the evening of January 7 in the Los Angeles Terminal Club.

The meeting implemented the expanded social and entertainment phase of the chapter's activities proposed by Ed L. Nelson, chairman of the entertainment committee, who has four social evenings scheduled for this year at which technical and business discussions will be bypassed in favor of lighter diversions.

The period from 6 to 7 p.m. was set aside for what Secretary Don Byl described in his announcement as a ". . . Social Hour and Bull Session, enhanced by a loveable accordion songstress."

V. A. Sutbblefield and Ernest C. "Jack" Hammersmith of the Pacific Fruit Express Company's refrigeration staff functioned as waiters, and no complaints were heard regarding their service, or the quality or cost of refreshments dispensed by them, for everything was free during the social hour.

An accordion program was presented by Miss Ruth Savalle in the form of a melange of old-time songs interspersed with request numbers. Herbert Royden of the Royden Ice Company chuckled with delight as the vocalist singled him out for a rendition of "Oh, Johnny, Oh, Johnny," which for the occasion she paraphrased to "Oh, Herby, Oh, Herby!"

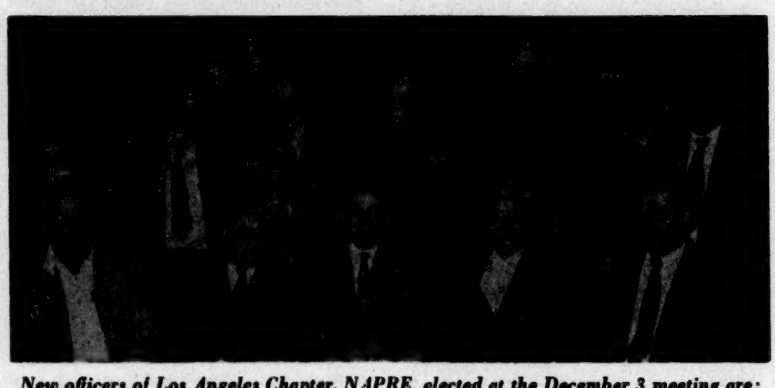
Following a cafeteria-style dinner in the dining hall, President-elect Frank Muzzy presided at his first meeting since election in December. A vote of thanks was given to Howard R. Murray of the Terminal Refrigerating Company for his donation of a locker which the chapter can use for between-meetings storage of paraphernalia.

President Muzzy made a brief welcoming talk in which he outlined the chapter's plans for 1953. He urged that a strong drive for new members again be conducted, not merely for the prestige that will accrue to the chapter from winning the plaque in 1953, but for the benefits and advantages that NAPRE has to offer to men in the industry who heretofore have not been affiliated with it.

Mr. Nelson then introduced Tony Laurence, Standard Oil Company geologist, who presented an absorbing film entitled "Oil Across Arabia." The picture dealt with construction of the world's largest oil pipeline system which extends for 1,000 miles across the desert from the Saudi Arabian oil fields on the western shore of the Persian Gulf to the Mediterranean Sea. Laurence explained that the pipeline cost $230,000,000 and represented the largest construction project ever undertaken by private enterprise.

Its construction was undertaken in 1947 to reduce transportation costs of oil which theretofore could only reach the Mediterranean by a long sea voyage down the Persian Gulf, through the Gulf of Oman, Arabian Sea and Gulf of Aden, up the Red Sea and through the Suez Canal. Transportation and toll charges were prohibitive, reaching as much as $40,000 per tanker-load of oil.

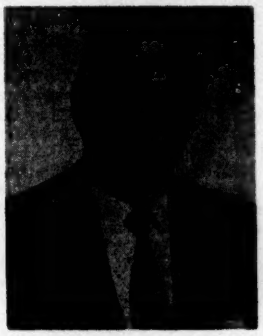
The pipeline's importance to the



New officers of Los Angeles Chapter, NAPRE, elected at the December 3 meeting are: Front Row, Clifford P. Scott, 2nd vice-president; E. T. Quinn, treasurer; Donald H. Byl, executive-sec'y; Frank C. Eccleston, 1st vice president; Frank G. Muzzy, president. Back Row: Michael Julius, Clifford C. Nordholm and H. A. Murray of the new board of directors; Donald H. Kitts, sergeant-at-arms; Fred A. Herr of ICE AND REFRIGERATION; and Edgar M. Marrs, retiring president. The new officers will be installed at the chapter's January 7 meeting.

United States, Mr. Lawrence said, may be judged from the fact that this country in 1953 will produce approximately 25 percent less oil than it will consume and vitally needs Near East oil to supplement imports from South America.

At the December 3 meeting, Frank G. Muzzy, Skasol Products Co., was elected President. Mr. Muzzy succeeded Edgar M. Marrs of the Union Ice Company. Other new officers are: First Vice-president, Frank Eccleston,



Frank G. Muzzy
New President Los Angeles Chapter NAPRE

California Consumers Corporation; Second Vice-president, Clifford P. Scott, Union Ice Company; Executive-Secretary, Donald H. Byl, Union Ice Company; Treasurer, E. T. Quinn, Pacific Fruit Express Co.; and Sergeant-At-Arms, Donald H. Kitts, Terminal Refrigerating Company.

The new Board of Directors is composed of Michael Julius, California Consumers Corp., Chairman, H. R. Murray, Terminal Refrigerating Company, and Clifford C. Nordholm, Baker Refrigeration Company. Three Past-presidents comprise the 1953 Advisory Board: Edgar M. Marrs, Chairman, George Paulick, and Dale Rycraft.

Chairman and personnel of the standing committees are as follows:

Educational and Instruction: R. H. Savage, Chairman, Regis Gubser, Ralph E. Hitchcock, Guy King, H. N. Royden, A. M. Shears, E. W. Smith, and V. C. Snyder,

Entertainment: E. L. Nelson, Chairman, Arthur E. Bender, Frank Eccleston, Rudi F. Kettler, D. E. Luedtke, W. B. O'Connor, and V. A. Stubblefield.

Membership: W. R. Burnett, Chairman, Donald H. Byl, Henry W. Hawkins, David Pattison, Gilbert L. Powers, R. L. Maple, Ralph M. Moore, Fred Nevins and C. C. Nordholm.

Attendance: Daniel M. Gorman, Chairman, E. G. Barrio, S. E. Brush, and Thomas J. Mason.

Finance: William F. Losch, Chairman, Rudi Kettler and H. M. Royden.

Employment: Frank Eccleston.

A father-and-son atmosphere prevailed when three well known members attended with their sons. William H. Brittin, owner of Brittin Engineering Company, a 26-year member of the chapter and its president in 1939, proudly introduced his two sons: Neil, a Bosun's Mate in the Navy, and Don, who works for the Southern Pacific Railroad; Regis Gubser, Past-president of the local group and a National Officer, then presented his 13-year-old son Raymond; and Ralph Moore, Gubser's associate in the California Consumers Corp. engineering dept., introduced his son, Charles, who is with the Bell Telephone Co.

"What to do about those New Orleans Boys" was the subject of a spirited discussion in which various and sundry methods were tentatively proposed for taming those rambunctious Southerners who for two successive years have stood like Andrew Jackson on the City's ramparts and thrown back the best Los Angeles had to offer in the national membership drive.

Ray Burnett had to by-pass both the December 3 and November 19 meeting due to an illness which had him hospitalized for a while. President Marrs, however, reported him well on the road to recovery and storing up barrels of energy for release during the 1953 membership drive.

The educational session featured a non-refrigerating scientific talk arranged through the efforts of Mr. Nelson. He introduced Dr. Thomas Clements, professor of geology of the University of Southern California, who presented an interesting and timely talk on "Earthquakes." The talk delt with the cause of earthquakes, with special reference to California quakes, and was illustrated with lantern slides. Nelson remarked that the talk was especially timely for him since he had spent the preceding week in Bakersfield, Calif., supervising reconstruction of the Union Ice Company's plant which had suffered some $40,000 in damage from the earthquake which razed a substantial portion of Bakersfield this past summer.

At the November 19 meeting, W. L. Holladay, of Holladay & Westcott, Los Angeles consulting engineers, addressed the chapter on "Compounds and Cascade Systems for Low Temperature Work." Mr. Holladay has designed and put into operation some thirty low temperature chambers ranging from minus 10 to as low as minus 150 degrees. He was able to draw upon a wide background of practical experience in presenting an interesting array of facts concerning the low temperature field.

Herbert N. Royden, the Royden Ice Company, and Regis Gubser, California Consumers Corp., two of the delegates to the Dallas convention, collaborated in giving a report of what transpired in Texas. Royden reported on the educational phase of the convention, the technical papers, quizz program, and the outcome of the membership campaign. This was the first news that Los Angeles members had of the fact that New Orleans Chapter had again given Los Angeles what could be described in no other way than a resounding licking. Mr. Gubser confined his report to attendance data, entertainment, the fine program Dallas Chapter had provided.

After concluding his report, Mr. Gubser presented to Frank Ecclestone of the California Consumers Corp. a special ash tray which, so Gubser claimed, the convention had awarded in recognition of Frank's outstanding ability as a golfer (Frank won the 1951 and 1952 Los Angeles Chapter golf tournaments). The ash tray was designed in a golf motif, with a golfer resting upon the edge of the tray and looking at an appropriate message along the base which alluded to what happens to old golfers when they die.

NAPRE Department

Seattle

JAMES R. BENNETT

OUR educational instructor, Frank Gellert, has been following the Guy King Refrigeration Course in our regular meetings, with the chapter answering questions and entering into a discussion of the subject material at hand, and in turn fitting it into their particular plants and operating problems.

At the December meeting Mervin Schmitz, chief refrigeration inspector for the City of Seattle, a member of this chapter, discussed certain parts of the code in force in Seattle and answered questions that arose.

Also at the December meeting, Instructor Gellert brought along a working model of the electronically operated Belmont controls, a device for changing the liquid level in a vessel usually operated by a float valve. As time ran short, Mr. Gellert will continue with his discussion of these controls at next meeting.

The following new members were brought into the chapter: In September, Joseph H. Pierce, chief engineer of the Smith Tower; Don Selg, operating engineer at Washington Co-op Farmers Assn.; In October, Charles H. Cothran, American Marietta Co.; James H. Vosburgh, Asst. Supt. in charge of production for the Broder Canning Co., Ltd., of Lethbridge, Alberta, Canada; In December, John W. Williams, Port of Seattle.

The following new officers for 1953 were elected: President, Chet Bertus; 1st Vice-President, Floyd Burris; 2nd Vice-President, Loren McRae; Secy. Treas., Jim Bennett; and Trustee, Robert Hutchison.

At the December meeting Floyd Burris, who attended the convention in Dallas gave us a report on the activities participated in. It was his first convention and he stressed how impressed he was with the way it was handled, the high caliber of men in the NAPRE and the royal manner in which he and Mrs. Burris were treated while in Dallas. It was the Burris' first convention. Floyd encourages all members to save their money and vacation time for attending these annual affairs.

Tex Cornish called to say he is operating at Olympic Cold Storage, but works Thursday evenings, thus can't make the meetings. Zenas Dobbs back off the briny deep, expects to be at meetings, and incidentally sent in next year's dues already. The new president announced that he had lined up a trip for January 22 to the Rainer Ice & Cold Storage Co.

Dallas

F. B. RIEK, JR.

AT A regular meeting on January 7, Dallas Chapter, NAPRE, elected the following officers for 1953: F. B. Riek, Jr., president; E. F. Price, vice-president; Cecil Taylor, secretary; J. D. Sims, treasurer; and Harold Koutnik, Sgt. at Arms. Although Dallas Chapter has no responsibility for a national convention this year, the members look forward to a very active and successful year.

NAPRE Department

Colton

L. G. SCHROEDER

CALIFORNIA Chapter No. 5, NAPRE, Colton, celebrated "Harry ter Night" on December 10, 1952, acting as host to sixty one members of NAPRE, friends and associates of Brother Harry O. Bonter and Mrs. Bonter. All officers of the chapter were present along with a number of past presidents. Past National President Emmet T. Quinn was present from Los Angeles Chapter.

Following a fine dinner Bro. Quinn was introduced by Bro. L. G. Schroeder, and following a fine talk concerning the service Harry has performed for NAPRE, presented a congratulatory letter from President Alvis Clay.

Rudy Carlson, Past President, was then called on to represent the many Santa Fe friends of Harry. He recounted the long association he had enjoyed with Bro. Bonter and pointed out the fine work performed as Secretary of Colton Chapter by Harry over many years.

Bro. Schroeder, representing Pacific Fruit Express Company, presented letters of commendation from Mr. L. Etzel, Refrigeration Supt., and Mr. Howard Cook, Supt., Car Dept. Master of ceremonies Charles Purkiss then called on Mr. J. H. Mairs past president Colton Chapter, who presented a check to Harry from his fellow employes and associates.

Oscar Farr was then called and presented a beautiful scroll on which were over one hundred names of well wishers for Harry O. Bonter. Bro. Bonter and Mrs. Bonter thanked all their friends for the good wishes and helpfulness during recent months that they have been somewhat under the weather.

We of Colton Chapter were happy for the opportunity to express as best we could the deep gratitude we feel for the work and service Harry Bonter has performed for our Chapter and the fine example he has set for younger men in our profession.

Chicago

DOUG BENTON

THE opening 1953 meeting of Chicago Section, NAPRE, was held on the 6th floor of the Chicago Engineers Club, January 6, President Bert C. McKenna presiding. Gene Rytlewski conducted the class session on controls. His lecture was supplemented by the speaker of the evening, Bill Richards, of the H. A. Phillips Company, Chicago. Bill presented a line of controls, mostly pilot operated types, and augmented his talk with slides, cutaway models and literature.

Herb Rosen, design engineer, and W. J. Banch, production engineer, both of the H. A. Phillips Co., were present and submitted applications for membership. The membership and Examing Committees had previously approved their applications and the members present voted favorably on them. John Raymond Sullivan, an association counselor, applied for Associate membership and was accepted.

Plans for an old timers night were completed, to be held on February 17, time and place to be announced at the next meeting.

Fresno

K. W. FINDLEY

AT OUR regular meeting of December 29, 1952, the following members were elected officers for the year 1953: T. R. Hagar, President; E. R. Seely, Vice-president; K. W. Findley, Secy.-Treas.; J. C. Bryant, Sgt.-at-Arms; L. H. Brown, Chairman Educational Committee and M. G. Campbell, Auditor.

The officers were installed at our regular meeting of January 26, 1953. Our Chapter for the past year has had an enjoyable and prosperous year. We have had a very good educational program in which all members have taken part. We are now looking forward to more of the same on a larger scale.

Stockton-Modesto

H. C. DYER

THE last meeting of Stockton-Modesto Chapter, NAPRE, was held at the Pacific Fruit Express Co. in Modesto, December 29, 1952. This meeting was held to elect new officers for 1953. The following members were installed: Thomas Woods, president; Thomas Kimmel, vice-president; H. C. Dyer, secretary; H. W. Hedburg, Guy Vancleave and C. C. Berkley, board of directors.

The following committees were appointed: Guy Vancleave, C. C. Berkley and E. L. Young, Educational Committee; Dennis Desjardins and William Tordsen, Refreshment Committee.

Following the installation of officers, Mr. Berkley continued with Guy King's course on refrigeration. We had a good turnout and Mr. Berkley's discussion of the course, with questions and answers on his discussion, were very interesting. We believe the members are getting quite a bit out of it.

It was decided to have a question box, and each meeting discuss one question from the Modesto members and one from the members in Stockton. In this way we can help each other with problems at the different plants.

St. Louis

KEN HOLADAY

FOLLOWING a custom of several year's standing, St. Louis Chapter celebrated the holiday season with an eatin' meetin' December 15. Serious business was deferred, as the members assembled at the headquarters of the St. Louis Heating, Piping, and Air-Conditioning Contractors' Association, where the rathskeller was available through the courtesy of that association and their President, Les Fleiter, who is also an NAPRE booster and past-president of St. Louis Chapter.

A generous buffet style dinner was spread in the bar room, and even late comers had plenty to eat. By the time all appetites were satisfied, Gene Bishop had set up a movie projector and proceeded to run off some musical, sports, and comic films. Most of the members then participated in a series of demonstrations of a technique for transferring all or part of the pocket money from certain participants, called losers, to certain others, called winners. The method involves an interesting game of chance, which was found to be a pleasure to both winners and losers, but especially to winners. Attendance prizes for the party were donated by E. W. Acey, Harry Crall, L. V. Fleiter and Carl F. Gast.

St. Louis Chapter NAPRE Christmas Party December 15, 1952. Standing: Charles Good, Jeff Thomas, Les Fleiter, Ed Hughes, Ed Lotte, Charles Wunderlich, John Dabbs, John Schijko, Ken Holaday, Arthur Mades, John Geders, Harold Suter, Roland Hillebrand, B. C. Stuckenmeyer, Eugene Bishop. Seated: Lester Lanser, Karl Frenz, Harry Crall, George Wonble, Elmer Oexner, Clarnce Johnson, Arthur Thomas. Squatters: E. W. Acey, Stan Tatalovich, Charles Taggart, Eugene Kessler, Collins Posey, Arlie Groenemann, Bill Allen.

The refrigeration study class under the leadership of Instructor John Dabbs, meets regularly at the David Ranken School of Mechanical Trades, and is keeping up with the current issues of the NAPRE refrigeration study course. The lectures are proving to be of great interest to members of the group, and class discussions have brought out many valuable pointers on safe and economical operation of the members' own plants.

Memphis

CHAS A. CONLEY

IT WAS movie night on Wednesday, December 17, 1952 for Tennessee Chapter No. 1, NAPRE. Through the co-operation of the Modern Talking Picture Service Inc., Miss T. R. Boland, Manager, ran two very fine educational pictures. "Steel With a Thousand Qualities," showed the plant of the Lebanon Steel Foundry, manufacturers of steel castings. The picture gave the history and growth of the plant, and the entire procedure of the making of the castings, including patterns and inspections. The picture was very educational because it showed how things are done in a foundry.

Another picture, "Growth of Industry," was about the Clinton Food Industries, Auburndale, Fla. It showed the plant in the operation of processing frozen orange juice and various other frozen foods. How and why the brand "Snow Crop" is used in marketing their frozen foods was explained. It was a very educational motion picture.

At the January 7 meeting, the following officers were elected for 1953: Jack Baker, president; E. H. Dupuy, 1st vice-president; Richard Bauer, 2nd vice-president; P. O. Henderson, sergeant at arms; Doug Smith, chairman, Entertainment Committee.

Charles A. Conley was re-elected Secretary-Treasurer and Alvis J. Clay, National President NAPRE, was elected Chairman of the Educational Committee in this his home Chapter.

It was also noted in the dues receipts that a great many firms are paying the membership dues of their engineers. It is gratifying to know that these firmly believe in and support the objectives of NAPRE.

Pittsburgh

OTTO P. KNOCH

THE Pittsburgh Chapter, NAPRE, resumed the educational meetings on January 21, taking up Chapter 12 in Section 7. The following committees were appointed by the President, Louis P. Mantz: Educational: Alfred Lossing, Chairman, Richard Conboy, Robert Neupert, George Kessel, David Jenkins; Entertainment: Thomas Knoch, Chairman, and Edward Tessmer; Data Book: Otto Knoch; Membership: Edgar Kenney, Chairman, A. W. Pfeiffer, James Reiter and Ben Dittmar.

Pictured above are Otto P. Knock, secretary-treasurer and Louis P. Mantz, president of Pittsburgh chapter NAPRE.

NAPRE Secretary Tours South—Visits Memphis, New Orleans, St. Louis

OFFICIAL duties took NAPRE Secretary Dick Kelahan to the Deep South in December. His itinerary included visits to Memphis, New Orleans and St. Louis. Unfortunately the trip did not coincide with regular Chapter meeting dates and visits with the chapters could not be made.

A call on President Alvis J. Clay was the first stop at Memphis. Mr. Clay and the Secretary spent considerable time going over the program for 1953. Committee chairmen were named by the President and goals established for the various committees. In addition to the Educational and Membership Committees, which are regular standing committees, the President appointed a new Chapter Activities Committee to assist Chapters in preparing programs which will coordinate educational, membership and social objectives within the Chapters. The Operating Data Book Committee was appointed and advertising goals increased over previous years.

The Secretary called on the President of the Memphis Chapter, Cecil Sullivan, Chief Engineer for Lowenstein's, Inc., and Charles A. Conley, Secretary of the Memphis Chapter who is Chief Engineer for the Memphis Cold Storage and Warehouse Company and the Mid-South Refrigerated Warehouse Company. A visit was also made to Mr. Charles H. Stanton, Supt. Engineer, Peabody Hotel, Memphis.

At New Orleans the Secretary met with First Vice President Leo J. Vivien and Director Frank Chase. Mr. Vivien is Secretary of the License Examining Board for the City of New Orleans. Mr. Chase is also a member of the Examining Board, and Chief Engineer and Building Superintendent for the Hibernia Bank Building, the tallest building in New Orleans. Other members of the New Orleans Examining Board are Past Presidents Addison E. Wegener and John J. Bryner. The Secretary was afforded an opportunity to pay a short visit to Mr. Bryner who is the Chief Engineer of the Roosevelt Hotel.

Official ICE AND REFRIGERATION duties took the Secretary into the New Orleans area, with calls at Ingalls Shipbuilding Corporation, Pascagoula, Mississippi, United Fruit Company at Julia Street Piers, Lykes Brothers Steamship Company and the Falstaff Brewery at New Orleans. Chris Kaupp, Chief Engineer at Falstaff, is an NAPRE member.

Returning to Chicago via St. Louis, the Secretary paid calls on Charles Wunderlich, President of St. Louis Chapter, Stan Tatalovich, Secretary, Les V. Fleiter, Al Loeffel, Harold Suter, Art Thomas and others. The Anheiser-Busch Brewery was on the itinerary, with a visit to Ken Holaday, Past President of NAPRE, who is Superintendent of Utilities at the "Budweiser" plant.

NAPRE Members Attend Carrier Engineers School

DOUGLAS BENTON and John C. McKinlay have been assigned to Carrier Corporation's construction engineering school at Syracuse, starting January 12, 1953. The school term will cover two weeks work on Carrier absorption machines with emphasis on erection and operation. The last week of the school term will cover instructions on field supervision and briefing on field cost accounting. Mr. Benton is vice-president of Chicago Chapter, NAPRE, and Mr. McKinlay is active on the chapter entertainment committee.

Cody Made Chief Engineer

WILLIAM C. Cody became chief engineer for Mercantile Laundry late in December 1952. Bill, an active member of Chicago Chapter NAPRE, has been active with power engineers, and heating and ventilating groups in the Chicago area. He says he is going to miss his refrigeration plants but that his buddies in NAPRE shouldn't hold his desertion of the refrigeration field against a fellow's ambition to get ahead.

Solution by Refrigeration

IN SINKING a ventilating shaft to a mine, much underground water was encountered. The problem was solved, reports "Natural Resources Notes" of the U. S. Chamber of Commerce, by rotary drilling a ring of holes around the proposed shaft, pumping down cold brine until the ground was frozen, and then digging the hole and lining it with concrete.

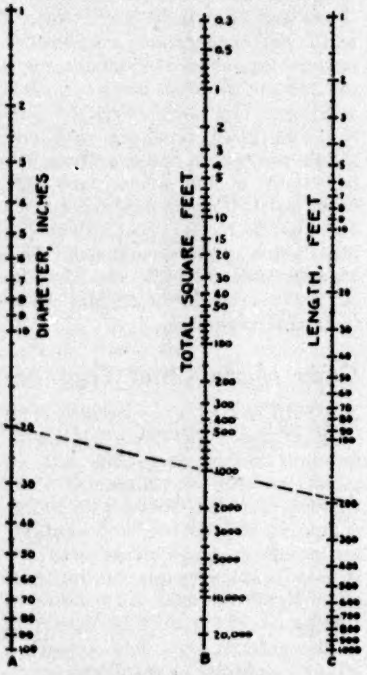
Chicago to Honor Watson

CHICAGO Chapter NAPRE will honor its former secretary, Jay R. Watson, Tuesday, February 17, at a banquet at Landa's on West Lake Street and North Waller Ave., at 7:30 P. M. Mr. Watson has completed 30 years of membership in NAPRE. The affair is open to wives of members and friends of the Chapter.

ENGINE ROOM POINTERS

The Area of Any Curved Cylindrical Surface

THIS chart is applicable to pipes, tubes, ducts, tanks, etc. For example, the dotted line drawn across the chart shows that if the diameter of the cylinder, pipe, tube, tank, or what not, is 20 inches, column A, and the length is 191 feet, column C, the total area is 1000 square feet, Col. B.



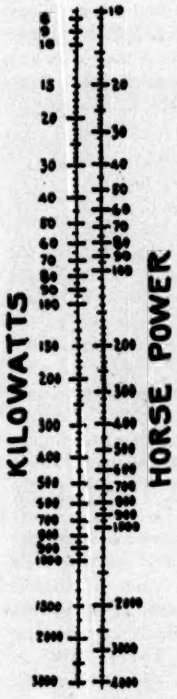
The chart covers a wide range—from 1 to 100 inches in diameter and from 1 to 1000 ft. length. But it can be applied to any diameter or length, as follows: let us suppose that you want to build a vertical tank of any material, 200 inches in diameter and 191 ft. high. What will be the area? Those figures have been chosen purposely to show that the same dotted line already drawn across this chart can be used to solve the problem. The answer will be 10,000 sq. ft. instead of 1000 sq. ft. for reasons that are obvious.

In other words, if you add a cipher to the figures in column A you must also add a cipher to the answer in column B. If you add 2 ciphers in column A you also add 2 ciphers in B. And so on. The same is true of column C. To make sure that everything is understood let us add 2 ciphers to the 20 in column A, making the diameter 2,000 inches. And let us add 2 ciphers to the 191 in C making the height 19,000 feet. The number of square feet will then be 10,000,000 because we must add a total of 4 ciphers to the figure in column B.

Note, please, that the tank just computed would be rather gigantic—nearly 4 miles high, and about 165 feet in diameter. It has been included here only to demonstrate that the chart really has no limit of application. It will be found handy for estimating and for checking one's "hand figuring" should it be decided that utmost accuracy is wanted.

The chart will therefore be found useful for determining the area of any cylindrical structure of any kind or size. It can also be used "backwards" to advantage. For example if you want 1000 sq. ft. of surface, column B, and if the diameter must be 20 inches, column A, the same dotted line tells you that the length must be 191 feet, column C—F.S.W.

How Many Horsepower? How Many Kilowatts?



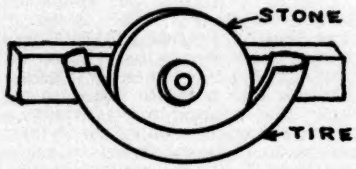
THE question often comes up as to the relationship between horsepower and kilowatts. The exact figure is: One kilowatt is equal to 1.3411 horsepower. That is the figure to use for exact computing. But most of us don't like longhand figuring, and most of the time an absolutely accurate figure is not essential. So this writer prepared the accompanying simple scale. Just glance across from one scale to the other—and there's the answer. You read the scales in the same way that you read an ordinary thermometer.

For example, how many kilowatts in 100 hp.? Find the 100 in the hp. column and glance over to the kw. column and there is the answer—75 kilowatts. For 10 hp. you can use the same figure if you wish by knocking off one cipher and the answer will be 7.5 kw. Or, in the same way 1 hp. equals 0.75 kw. Now do this one: How many hp. in 1,500 kw.? The answer, as the scale shows, is 2,000 hp.

—F.W.S.

Wornout Auto Tire Serves Grindstone

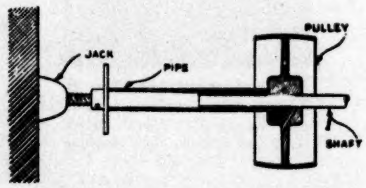
HERE is a rough sketch showing how a good friend makes use of a worn out automobile tire. The half of the tire which was discarded very likely had a hole worn through it. But the "other half" of almost any old tire will hold water, as discovered by this friend.



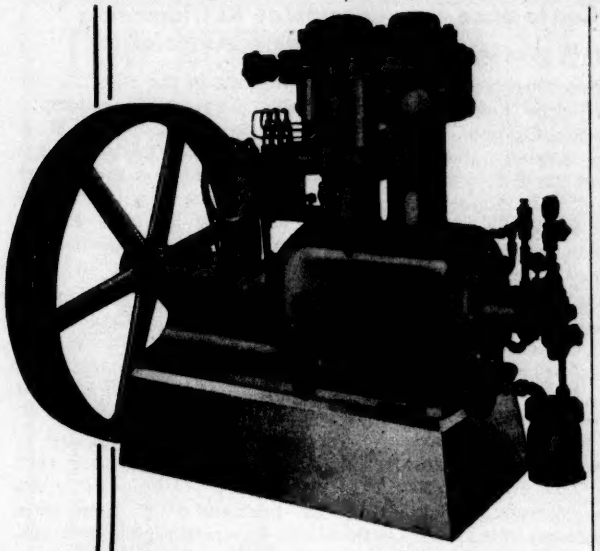
He nailed the old tire to the wooden cross-beam on the grinder, as indicated in the sketch, in such a way that the lower portion of the grindstone is continually immersed in water, in regular grindstone fashion.

Pushing a Pulley Onto or Off of Shaft

AMONG your tools you very likely have a screw-jack or some other kind of jack. If you own an automobile a jack surely came with it. Also, you probably own an assortment of metal pipes. That being the case you are all set up for doing a wide range of forcing jobs such as forcing sheaves, bearings, gears, pulleys, etc., onto or off of shafts.



This sketch shows how easy it is to take care of a job of this kind by means of a screw jack and ordinary standard pipe. It is so simple that further words are deemed unnecessary. The sketch tells the entire story.



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TAYLOR INSTRUMENTS MEAN ACCURACY FIRST

Air Conditioning Candy Plant

(Continued from page 18)

ment which deserves special attention. To obtain the required low humidity air for the enrobing room requires use of approximately 54 gpm of 12-25 F calcium chloride brine, depending on winter or summer fresh air conditions. The brine is pumped through the cooling coils of the Kathabar dehumidifier. Both air (2500 cfm) and the lithium chloride-base, moisture-absorbing solution pass over these coils.

Normally, the equipment would have to be shutdown for defrosting when using this low temperature brine refrigerant. However, and here is the outstanding and almost unheard-of fact regarding this system, not once in three years has this equipment been shutdown for defrosting purposes.

Reason for this, once explained, is simple enough: the lithium chloride-base solution will not freeze or even become sluggish under temperatures as low as minus 100 F. But for this phenomenon, it would have been necessary to install double capacity cooling coils for continuous operation, or to defrost at the end of each day's operation or more often as required. For this reason, both capital equipment and operating costs are considerably reduced.

About 1800 cfm of air is recirculated from the space through the dehumidifier; fresh air amounts to 700 cfm at maximum summertime conditions of 95 F, 120 grains/lb. A high internal latent load is caused by the 15 operators in the enrobing room. Fluorescent lighting of 2240 watts contributes to the internal sensible load.

Reconditioning of the solution absorbent is accomplished automatically and continuously; hence, the absorbent is used time-after-time for its moisture inheriting property. Periodically during equipment operation, a small amount of the solution is sprayed over low pressure (25 psig) steam coils. Here the excess moisture in solution is driven-off and exhausted to the atmosphere. Too, the absorbent, with its antiseptic properties, allows for room circulation extremely pure and odorless air, a necessity for Kroger's candy processing.

Frozen Food Sales Low In United Kingdom

FROZEN foods are not so high on the shopping list of housewives in the United Kingdom as they are in the United States and some other countries. Most British housewives buy frozen foods only by straining their budgets and buy only if they can use the food immediately.

Fact Finding Conference

(Continued from page 16)

Miller of Washington Farmers Coop. Association, and George Rogers of the Office of Price Stabilization.

Joseph Fechtel, Western Hatcheries, will chairman the final session Tuesday afternoon, the Production and Procurement Workshop. J. R. Redditt of Cudahy Packing Company will bring out the havoc unsound financing programs can wreck in turkey and broiler marketing and merchandising operations. Waldo Haldeman of American Stores, Inc., and Professor E. M. Funk of the University of Missouri, will examine what's happening to egg quality and why. Leon Johnson, Indiana broiler grower, will show how to maintain broiler profits by controlling costs and increasing efficiency. John Leary, Long Island duck grower, will discuss production, dressing and economic problems the duck industry needs to solve to improve its merchandising results. Samuel Port, of Frozen Farm Products, Inc., will describe the growing importance of new products such as frozen chicken pie, which are providing outlets for additional volumes of fowl, now a by-product of egg production.

Book Review

REFRIGERATING DATA BOOK, Applications Volume (4th edition), H. C. Diehl, Editor in chief. Published by American Society of Refrigerating Engineers, 40 W. 40th St., New York. Illustrated. Price $6.00. For sale by Nickerson & Collins Co., Chicago.

This third revision and fourth edition of The Refrigeration Data Book, Applications volume is one of a continuous series of books published by the Society since 1932, the sub-title "Applications Volume" having been adopted with the 1940 edition. The term "applications" is intended to cover the sale and use of the product, starting with the time it is turned over to the sales department and continuing until it is actually in use.

The subject matter of this volume has been influenced by technological developments of recent years, especially the wider use of low temperature refrigeration, frozen foods, and increased uses of refrigeration for industrial applications.

The book is divided into eight major sections, each handled by an associate editor who is a specialist in the overall field covered by his section. In each section chapter officers have been selected who are well informed and experienced in the particular field covered by the chapter.

Practical Refrigerating Engineers Association

THE meeting of the P.R.E.A. December 17 covered the automatic ice cube maker presented by H. J. Prebensen and Mike Goddard of the Air Comfort Corporation and Carrier Corporation respectively. One of the Carrier automatic ice cube makers was in operation for inspection by our members.

The panel discussion later in the evening covered "Air Coolers for Low Temperature Rooms" by John H. Campbell of the Bush Manufacturing Company and David Ward of Niagara Blower Company.

The Business Session consisted of the installation of officers for 1953 and presentation of certificate to the retiring president. The new Data Book and Buyers Directory was distributed at this meeting.

The following officers were installed:

President, Hugh McKee, Brinks, Inc.

Vice-president, Jack Niblett, Henrotin Hospital.

Vice-president, Joseph Farrell, Continental Freezers.

Recording Secretary, Fred H. Loth, P. Brennan Co.

Secretary-treasurer, Gustave E. Bour, Lincoln-Boyle Ice Co.

Sergeant-at-arms, Max Falk, Brennan Packing Co.

Over 90 members and guests were pleased with the two topics presented before the association which included an illustrated lecture on the Construction and Operation of the Carrier Ice Cube Maker.

The regular meeting of Wednesday, December 3, was held in the Engineering Bldg. Auditorium with the usual social hour and dinner preceeding the meeting, compliments of the Garlock Packing Company. The early subject was a talk by Stewart O'Byrne on the subject of "Practical Applications of All Kinds of Packing." This was received with unusual interest and a spirited discussion followed the speaker.

The usual business session followed the speaker with several new members joining the association.

The topic of the evening at 8:30 was a panel discussion on "Applications of Refrigeration in Food Distribution." The panel consisted of members Bour, Hendron, Vollman and Loth. Some of the subjects discussed were transportation, storage and shipping with a large discussion from the floor.

Approximately 85 members were present.

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The New REGAL Model 25 has all steel frame legs, grate handle and grate. Self-aligning ball bearings. Legs high enough for 25-lb. paper bag to be filled. Galvanized for the prevention of rust. ¾ HP. motor. Direct drive, no gears. Shelf for placing ice on before entering hopper. Slanting hopper for easy loading. Four grate adjustments by turning the handle on side of crusher. Makes a very good fine ice on grate closed. Will take long 50-lb. blocks in hopper. Two belts for sure pulling power. Belts and motor pulley furnished when crusher is ordered without motor. Delivery can be made on receipt of order. Guard covers the fly-wheel and motor pulley.

Price $149.00, less motor. Motor at prevailing price.

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The Bateman all steel MONARCH Model 50 Ice Crusher is galvanized for the prevention of rust. Slanting hopper for easy loading, with shelf for placing ice on before entering crusher. Hopper opening—12½"x15". Uses 1 HP. motor with V-belt drive. All moving parts move on either ball or roller bearings. Gears are of alloy steel hardened for long life and trouble free. Steel shell, legs, grates, grate handle and alloy steel teeth. Belts and pulley furnished when crusher is ordered without motor. Side plates and bottom of hopper 3/16" steel.

Price $235.00, less motor. Motor at prevailing price.

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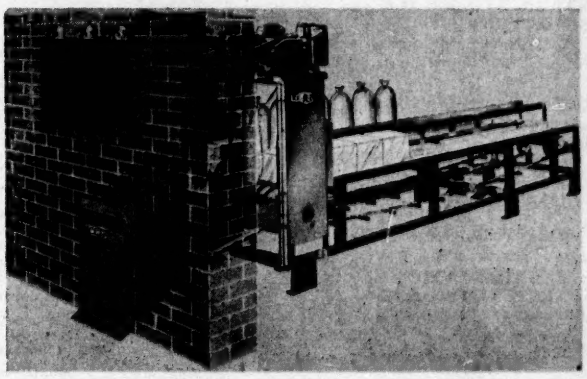

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CONVENTION CALENDAR

FACT FINDING CONFERENCE
February 14-17, 1953
Kansas City, Mo.
CLIFF D. CARPENTER, President

GEORGIA ICE MANUFACTURERS ASSOCIATION
February 24-25, 1953
Ansley Hotel, Atlanta, Ga.
RICHARD H. FLORRID, Secretary

SOUTHERN ICE EXCHANGE
February 24-25, 1953
Ansley Hotel, Atlanta, Ga.
RICHARD H. FLORRID, Secretary

ALL-INDUSTRY FROZEN FOODS CONVENTION
March 1-4, 1953
Conrad Hilton Hotel, Chicago, Ill.

NORTH CAROLINA ICE ASSOCIATION
March 9-10, 1953
Robt. E. Lee Hotel, Winston Salem, N. C.
LEWIS POWELL, Secretary

NORTHWEST ASSOCIATION OF ICE INDUSTRIES
March 25-27, 1953
Empress Hotel, Victoria, B. C.
L. F. MARSH, Exec.-Secy.

INDIANA ASSOCIATION OF ICE INDUSTRIES
March 31-April 1, 2, 1953
French Lick Springs Hotel, Ind.
ROBT. W. WALTON, Secretary

SOUTHWESTERN ICE MANUFACTURERS ASSOCIATION
April 8-10, 1953
Gunter Hotel, San Antonio, Texas
P. A. WEATHERRED, Secy-Counsel

EASTERN STATES ICE ASSOCIATION
April 9-10, 1953
Hotel Chamberlain, Old Point Comfort, Va.
GORDON T. WILSON, Secretary

VIRGINIA ICE MANUFACTURERS ASSOCIATION
April 9-10, 1953
Hotel Chamberlain, Old Point Comfort, Va.
H. H. SNYDER, Secretary

THE REFRIGERATION RESEARCH FOUNDATION
May 15-17, 1953
Shoreham Hotel, Washington, D. C.
H. C. DIEHL, Director

NATIONAL ASSOCIATION REFRIGERATED WAREHOUSES
May 17-21, 1953
Shoreham Hotel, Washington, D. C.
WM. DALTON, Exec. Vice-Pres.

AMERICAN WAREHOUSEMEN'S ASSOCIATION
May 17-21, 1953
Shoreham Hotel, Washington, D. C.
WM. DALTON, Exec. Vice-Pres.

New Booklet on Proper Handling of Frozen Foods

A BOOKLET devoted to proper handling practices for frozen foods has been issued by the National Association of Frozen Food Packers. Entitled "Protecting Frozen Foods from Producer to Consumer," the booklet sets forth detailed recommendations for all types of frozen food handlers, with particular emphasis given to retailers' obligations.

Prepared in two colors, with attractive art work, the booklet is an emphatic reminder to all factors in the industry that frozen foods require constant protection of 0F refrigeration to maintain the high standard of quality that has gained them such wide consumer acceptance.

Leading frozen food packers are planning widespread distribution of the booklet so as to focus the attention of the entire industry on this important problem.

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Whenever you need coils, write for our free tracing-chart which shows standard dimensions ready to fill in. It will simplify your specifications—whether for zig-zag or nested box or conical or round-flat or reducing coils.

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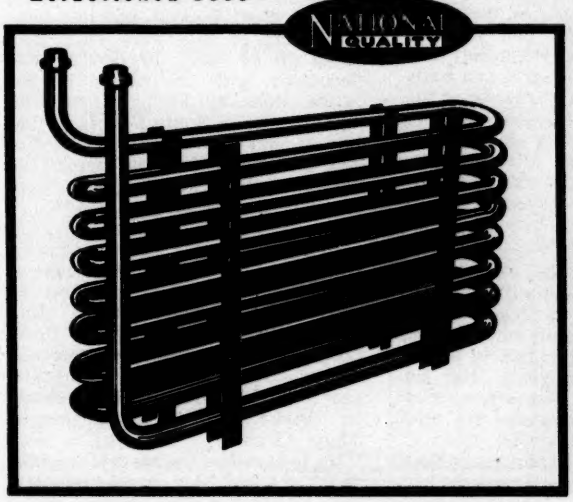
162 RIVER STREET • NEW HAVEN, CONN.

Established 1883



HOW COLD IS AN OYSTER?

It all depends on what's being done to him. On shipboard he's kept at bed water temperature, he's quick-frozen at minus 20 F., and held in storage at minus 10 to 12 F. The *exact* temperature is all-important to keep him in top-profit condition.

Whatever your product, or temperature requirement, HOWE engineers have the know-how to solve your particular refrigeration problem. Through HOWE'S job-proved economies, you can cut operating and maintenance costs to a minimum. HOWE Compressors have interchangeable parts . . . a money-saving advantage. Whether you need a new plant, or must re-design your old one, HOWE can do it for you economically . . . *exactly!*

41 YEARS OF SPECIALIZATION INSURE SAVINGS

Since 1912, manufacturers of ammonia compressors, condensers, coolers, fin coils, locker freezing units, air conditioning (cooling) equipment.

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HOWE ICE MACHINE CO.

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Distributors in Principle Cities • *Cable Address: HIMCO, Chicago*

HOWE POLAR CIRCLE COILS produce 6-way savings! Built for heavy duty in meat packing, ice cream, quick freezing, ice and cold storage plants. Provide improved refrigeration that assures better product control. Write for details.

New Plants and Improvements

St. Simons Island, Ga.—Additional sub-zero space was completed recently by the Sea Pak Corporation for storage of finished frozen foods.

Louisville, Ky.—The Merchants Ice & Cold Storage Co. has bought an additional 100 feet of Logan Street property to facilitate loading and unloading of produce trucks.

Lawton, Mich. — Plans are under way to add a second freezer room to the Lawton factory of the Welch Grape Juice Company according to Charles McLellan, manager of Michigan operations. The new building will be 28 x 50 feet. It was made necessary because of the increased demand for grape concentrate, the production of which was begun this year.

Red Hook, N. Y.—The Red Hook Cold Storage Co. has erected a building for installation of a controlled atmosphere for fruit storage. The building is 160 x 60 feet and has four rooms with total capacity of 48,000 boxes of fruit. A combination of controlled temperature and carbon dioxide gas will be used.

Navasota, Tex.—E. J. Nelson, manager of the Navasota plant of the Texas Refrigeration & Ice Company, has announced that the plant, which was destroyed by fire some weeks ago, will be replaced soon at a cost of approximately $75,000.

Mount Vernon, Wash.—The largest one-story palletized low temperature food storage warehouse in the Northwest has been assured for Mount Vernon, according to announcement by Rex Wilson, president of the Chamber of Commerce. The plant, to be known as the Skagit Cold Storage will be 140 x 220 feet, with adjoining engine and compressor house. Cost of the plant will be more than $500,000. Construction will be reinforced concrete, with a capacity of 12,500,000 pounds of finished products. Handling will be mechanized, with conveyors and fork lift trucks. York equipment will be used.

Fire and Accident Record

Greensburg, Pa.—Fire caused an estimated damage of $12,000 to $15,000 to the Greensburg ice plant. A large truck was destroyed and extensive damage was done to motors and other equipment.

Navasota, Tex.—The $75,000 Texas Refrigeration and Ice Company plant was destroyed by a two-alarm fire. The loss was partially covered by insurance. The only portion of the plant not destroyed was a small ice vault. Considerable damage was caused when a 150-lb. ammonia tank exploded while the fire fighting was in progress.

San Antonio, Tex. — Fire swept through the engine room and ice manufacturing plant of the Southern-Henke Ice & Storage Company causing damage estimated at $225,000. The portion of the building housing the ice plant collapsed but firemen confined the blaze to that area.

Sales and Reorganizations

Sparta, Ga.—The Sparta Ice Company has been formed to assume control of the present ice plant. Improvements will be made during the winter months to make it possible for the plant to be in full operation next summer.

New York, N. Y.—The American Ice Company has sold the five-story building at 348-354 Broome Street. The property occupies an irregular plot about 163 x 101 feet. Occupied as an ice plant, the building was erected in 1917 by the Knickerbocker Ice Co.

New Incorporations

Manhattan, N. Y. — The Freezer Service Company Inc. has been granted a charter of incorporation, listing capital stock of 200 shares no par value. Directors are Rose Berman, Rosetta Farrell and Jesse Sobol.

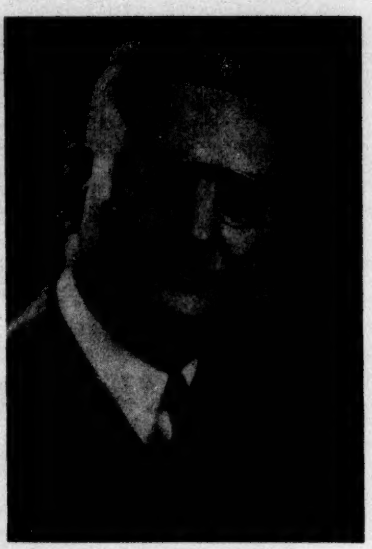
New York, N. Y. — Morich's Ice Company Inc. ice and ice products has been granted charter of incorporation, listing capital stock of 100 shares of no par value. Directors are Sylvia A. Dudzic, Arlene D. Pillsky and Murray I. Kurtz.

Icy Items

Dallas, Tex.—The Quality Ice Company is increasing its capital stock from $100,000 to $150,000.

DEATHS

Lee R. Girton



Lee R. Girton

THE death of Lee R. Girton, well known throughout the ice industry and prominent in the civic and business affairs of Sioux Falls, S. D. occurred in a Sioux Falls hospital December 22 at the age of 74. He was chairman of the Board of Directors of the Girton-Adams Ice Co.

Mr. Girton was prominent as an active member of the National Association of Ice Industries for many years and served for two years as president, 1932-1934. Previously and since that time he had served on many committees and was a Director at the time of his death. He also was secretary and the guiding spirit of the Tri-State Association of Ice Industries, covering the Dakotas and Minnesota. He also served four years as president of the American Retail Coal Association.

Born at Harlan, Ia., August 13, 1878, Mr. Girton came with his parents to near Vilas in Dakota territory in 1883. The family later moved to near Madison. He came to Sioux Falls in 1906. Four years later he joined with the late James Adams in forming the Girton-Adams Ice and Fuel Co., which operated from a frame building. For many years that was the location of winter ice-cutting operations. The company later established a more modern building but continued an ice and coal yard at the river location.

He was a past president of the South Dakota Association of Industries and also of the Northwest Retail Coal Dealers Association. At the time of his death he was a director and member of the executive committee of the latter organization. He was a member of the board of directors of the National Tax Equality Association of Chicago and also of the U. S. Business Organization, Inc., Washington, D. C. He was also a member of the executive committee, permanent director and national counselor of the U. S. Chamber of Commerce.

Among other groups which he served as president were: Greater South Dakota Association, Sioux Falls Chamber of Commerce, Navy League of the United States (1944-45) and Sioux Falls Rotary Club. He was also a past governor of Rotary International District 119. He was a member of the board of the South Dakota Merit Council and had been a member of the Sioux Falls Elks lodge for 33 years. In 1940 he was decorated with the Order of the White Rose by Finland for relief work he did in South Dakota on behalf of that country. As a trustee of Sioux Falls College he served as chairman of a $135,000 development program for the college in 1941.

His record as a Mason for more than 50 years was equally impressive. He was a 33rd degree Mason of Sioux Falls Consistory. In 1930, he served as potentate of El Riad Shrine. He was a member of Unity Lodge 130 AF & AM, past commander of Cyrene Commandery No. 2, past high priest of Sioux Falls Chapter RAM No. 2 and a member of Alpha Council.

He is survived by his widow, four daughters and four grandchildren.

With This NEW Improvement Niagara "No-Frost Method" puts you a big step ahead in trouble-free, automatic refrigeration or freezing

Niagara "No-Frost Method" keeps frost and ice COMPLETELY OUT of your cooling, chilling, freezing or cold storage.

It uses Niagara No-Frost Liquid Spray to keep frost and ice from ever forming. It gives you, automatically, refrigeration with no defrosting, and full capacity NEVER cut down by ice building up progressively on refrigeration coils.

Now, a NEW design No-Frost Liquid concentrator, using a new principle, takes away moisture as fast as it is condensed by evaporating it at low temperature —not boiling it away at high temperature. It has 14 times the capacity of the old method per dollar of investment — one concentrator will handle a battery of high capacity spray coolers.

This gives you more refrigeration at lower cost; less machinery in less space. You operate at high suction pressure, saving power and wear and tear on compressors.

The extra capacity and lower cost both for equipment and operating makes this method advantageous for every type of refrigeration use—both for freezing and for moderate temperatures—for large "live" loads as in meat chilling or in fruit and vegetable precooling — for rooms that are filled and emptied of product daily, such as milk rooms and terminal storage warehouses.

You get true trouble-free refrigeration . . . No brine . . . no salt solution . . . no dirt . . . no mess . . . It is entirely clean; you get rid of dirt and odors. You reduce both equipment and operating costs.

For complete information write to the Niagara Blower Company, Dept. IR, 405 Lexington Avenue, New York 17, New York.

If you need extra capacity . . . the Niagara "No-Frost Method" can help you get it with your present compressor.

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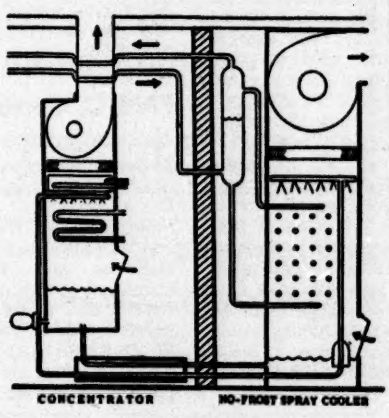
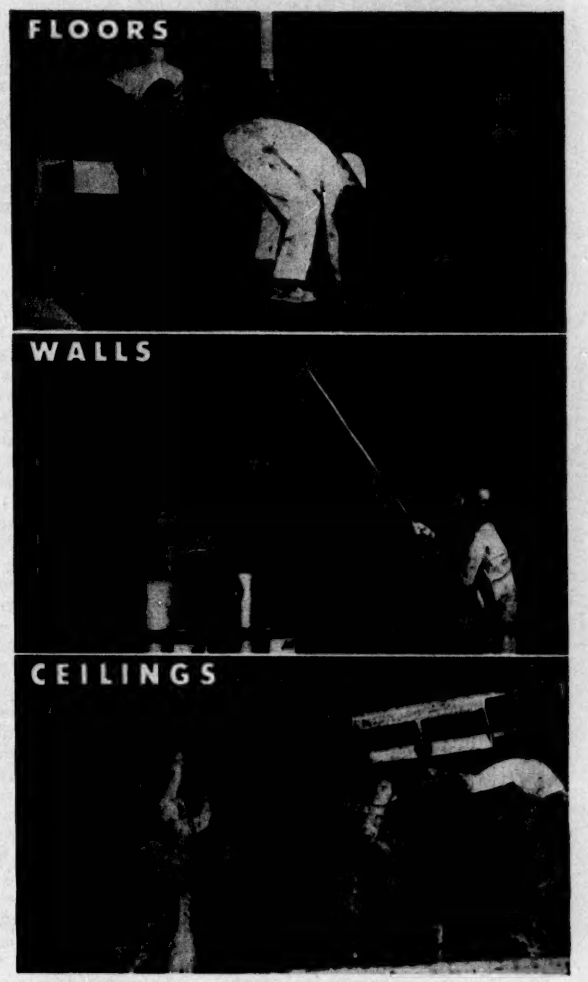
A simple method, easily maintained. Saves a third of your refrigeration cost . . . Ask for Niagara Bulletins 118 and 119.



Specify Laykold® for cold insulation construction



These easy-to-use LAYKOLD products are applied cold, with spray, brush or trowel

- **LAYKOLD INSULATION ADHESIVE,** for vapor barriers and for holding all types of insulating materials.
- **LAYKOLD CEMENT,** a special product for holding rigid-type insulation on masonry or concrete surfaces.
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Dr. Mary Engle Pennington

ONE of the nation's outstanding food and refrigeration scientists, and closely associated with the refrigeration industries for more than half a century, Dr. Mary E. Pennington died Saturday, December 27 following a three days illness in St. Lukes Hospital, New York City. She had just passed her 80th birthday.

Dr. Mary E. Pennington

Although technical schools generally were not open to women at the time she was ready for college, she was admitted to the chemical laboratory of the Towne Scientific School and the following year to a course in biology at the University of Pennsylvania. Following graduation, she did graduate work, with chemistry as a major and botany and zoology as minors, leading to a Ph.D. in chemistry from the University of Pennsylvania. She then became a research Fellow in the University of Pennsylvania in chemical botany for two years; a Fellow at Yale for one year, working on physiological chemistry; and a Fellow of the American Association for the Advancement of Science.

She became an expert in bacteriology, and the field of food chemistry and in 1898 established the Philadelphia Clinical Laboratory, which was an outstanding success and was patronized by some hundred physicians from as far away as California. Later she was asked to reorganize the city's bacteriological laboratory which brought many new problems, among them the care of perishable foods during marketing. In this connection, through research she developed valuable information on preserving milk by refrigeration.

In 1905 she was named bacteriological chemist and chief of the Food Research Laboratory set up by the Department of Agriculture to implement the federal food and drug act passed the previous year. In this position she headed a staff of about fifty technicians and field men, with headquarters in Philadelphia. This laboratory was specifically charged with the study of methods whereby quality could be established in eggs, dressed poultry, and fish. The results of this applied chemistry, bacteriology, anatomy, and thermodynamics led to a revolution in the methods used in warehousing and packing houses, in transportation under refrigeration, and in distribution through market centers.

During World War I she took an active part in the War Food Administration under Herbert Hoover, which won for her a Notable Service Award from Hoover. During this time the Railroad Administration adopted the essential features of refrigerator car construction as worked out by the Laboratory and these have been continued as standard.

After fourteen years in the government service, she went to New York where for three years she carried on research and development work for the American Balsa Company.

In 1922 she established an office in New York City, where she became an independent consultant, adviser, and research director on handling, transportation, and storage of perishables, and the application of refrigeration to minimize waste and deterioration.

From 1923 to 1931 she was director of the Household Refrigeration Bureau of the National Association of Ice Industries, in which she prepared bulletins providing information on household refrigeration, directed a number of home service workers employed by individual ice companies, and directed research work on household refrigerators. For the refrigerated warehousing industry she conducted research on poultry and eggs, leading to findings on temperature and humidity conditions that have remained as standard practice. In frozen foods also she did original research work on frozen poultry.

During World War II she acted as consultant and advisor to the Research and Development Branch of the Military Planning Division, Office of the Quartermaster General, and to the Food Control Division of the War Shipping Administration.

As an independent consultant she has supervised, in relation to the preservation of perishables, the design and construction of refrigerated warehouses, precoolers, commercial and household refrigerators. She has supervised the operation of cooler rooms for fruits, vegetables, eggs, and other products in various refrigerated warehouses. She conducted important research work on the handling of perishables for some of the largest food manufacturing organizations. She acted as consultant and advisor in certain research and development projects for large organizations serving the perishable products group, with information on containers, packing, and refrigerated transport.

Her membership in scientific and technical societies included the following: American Society for Advancement of Science; American Chemical Society; Society of Biological Chemists; American Society of Refrigerating Engineers; Institute of Food Technologists; American Institute of Refrigeration, International Institute of Refrigeration; Institute of American Poultry Industries; Poultry Science Association; National Poultry, Butter & Egg Association (honorary); National Association Refrigerated Warehouses (honorary). At the time of her death she was vice-president of the American Institute of Refrigeration.

She was an official delegate representing the United States at the First International Congress of Refrigeration at Paris in 1908; the second Congress at Vienna in 1910; the third Congress at Chicago and Washington in 1913; and was a delegate to the Eighth Worlds Poultry Congress at Copenhagen, Denmark in 1948.

In 1940 she was honored with the Garvan gold metal, conferred by the American Chemical Society for distinguished work in her field.

During her long career Dr. Pennington wrote a number of magazine and technical articles and government bulletins, and made many addresses before technical and commercial organizations on the handling, refrigeration, and distribution of perishables, and in this connection was a frequent contributor to ICE AND REFRIGERATION. Among these were Department of Agriculture bulletins on poultry, egg and fish conservation; articles in scientific journals dealing with chemistry and bacteriology; addresses before technical and commercial organizations on the handling, distribution and refrigeration of perishables; author of educational bulletins on household refrigerators for the National Association of Ice Industries; author of handbook "The Care of Perishable Food Aboard Ship;" co-author of the book "Eggs"; co-author of the book "Food and Food Products."

Burial services were conducted in Philadelphia. She is survived by a sister, Mrs. Morris C. Betts of Dobbs Ferry, New York; a niece, Mrs. R. C. Elderfield, Ann Arbor, Mich., and a nephew, John M. C. Betts, of Hamden, Conn.

Fred C. Carroll

THE death of Fred C. Carroll, Sr., founder of Capital City Ice Company, Tallahassee, Fla., occurred Christmas Day, following several months illness. He was 56. Mr. Carroll was also head of the Capital City Bakeries and Farmers Fertilizer Company of Tallahassee and Farmers Peanut Co., at Cairo, Ga. He is survived by his widow, a daughter, Mrs. W. C. Smith, and a son, Fred C. Jr., who has been managing the several properties for some time.

GEORGE M. KLEUCKER, consulting engineer in refrigeration and former president of the old Midwest Cooler Corp., St. Louis, Mo., died December 10 at the City Infirmary of St. Louis. He was 84. Since closing of the Midwest Cooler Corp. about eight years ago Mr. Kleucker continued active in the business until about two years ago. He was a life member and former president of the American Society of Refrigerating Engineers.

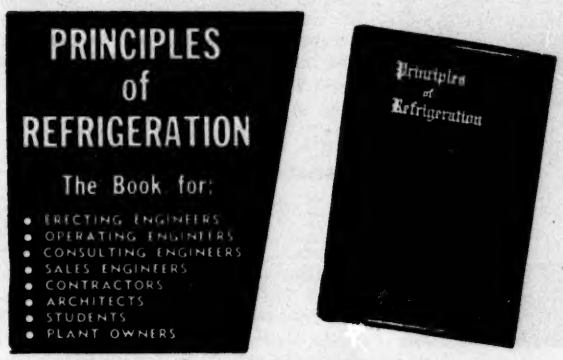
JOHN G. ALEXANDER, Charlotte, N. C., associated with the Ice Delivery Company for 21 years before he retired 12 years ago, died suddenly December 23 after an illness of a week. He was 80. He was a member of the Plaza Presbyterian Church. Survivors include three daughters and two sons.

MAT O. ANDRAE, comptroller at the Wisconsin Ice & Coal Co. Milwaukee, Wis. for the last 16 years died December 3 of a heart attack. He was 64. He was a member of the Masonic lodge.

JOHN M. FELLERS, owner of the Ardsley (N. Y.) Ice & Coal Company, until he retired six years ago died December 14 at the age of 71. He was a village trustee from 1934 to 1936.

Air Conditioned Autos

A MAJOR engineering advance in 1953 automobiles will be an optional item—refrigerated air conditioning. And at around $600 extra it apparently will be pretty much of a luxury item. Nevertheless it will be offered in several Chrysler and General Motors models for next year. Air conditioning devices were tried out by one car manufacturer some 15 years ago. The effort was abandoned because of high production costs and no wholly satisfactory operating results.



PRINCIPLES OF REFRIGERATION, 3rd Edition (1947) revised by Wm. H. Motz, provides information and data for the practicing refrigeration engineer. Of special interest to erecting and operating refrigerating engineers, refrigeration machinery sales engineers, persons employed in building refrigerating machinery and those employed in ice making, cold storage plants or other establishments equipped with refrigerating machinery. Contains information that the refrigerating engineer should know in order that he may have complete and up-to-date knowledge.

Written in every day language and as free as possible from higher mathematics. The theoretical and fundamental operating principles are given attention first—followed by numerous practical considerations and the application of principles to the economic production of ice and refrigeration for various purposes.

672 Pages—215 Illustrations—9 Folded in charts—6 Working charts in Cover Pocket. Substantially bound.

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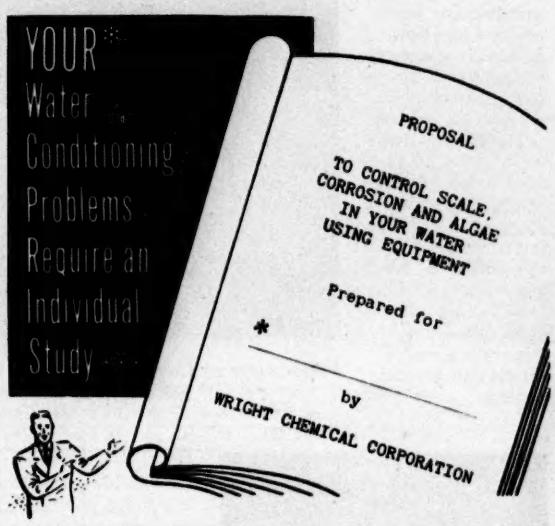
YOUR Water Conditioning Problems Require an Individual Study
PROPOSAL
TO CONTROL SCALE, CORROSION AND ALGAE IN YOUR WATER USING EQUIPMENT
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Wright Water Conditioning Service is *complete!* It starts with a scientific laboratory analysis of your individual water condition problems, followed by a written proposal for the solution. After you adopt our recommendations, we make constant checks to insure proper performance.

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COLD STORAGE PIPE SCRAPERS

What's New

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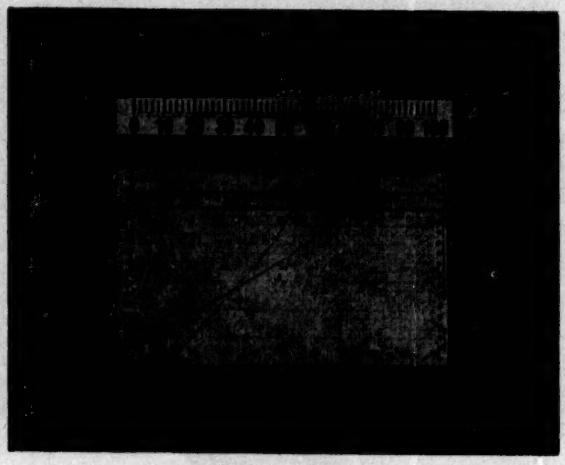
Data Sheet Describes Brown Btu Meter

THE operation and application of the Brown Btu Meter, which simultaneously records differential temperature and flow of a liquid, and provides direct reading of Btu is described in Instrumentation Data Sheet No. 10.19-1 issued by Minneapolis Honeywell Regulator Co. The instrumentation is applicable to heat exchanger testing; measurement of heat transfer in refrigerating and air conditioning installations, and recording of thermal data of processes in pilot plants, in addition to many other industrial uses.



Front view of Duplet Electronik differential temperature and Btu recorder.

Built originally to measure the energy dissipated by the cooling system of an atomic reactor, the Btu meter is suitable for use in a number of other applications. In general, it can be employed to advantage wherever it is necessary to measure the number of heat units per unit of time either dissipated or absorbed.

New Device Provides Constant Temperature

A NEW constant temperature control bath machine that will maintain any desired temperature ¼ degree F. maximum variation is being marketed by The Service Metal Fabricators Company of Beverly Hills, Calif. The new machine introduces the use of both a refrigeration system, and an electrical heating system, to maintain temperatures.

FISHING for EXTRA PROFITS? They're YOURS with

ICE CARVINGS & ICE PUNCH BOWLS

It's big—it's easy—it's PROFITABLE! You use your present freezing and delivery facilities—make fuller use of them—lower your over-all costs and at the same time secure an important PLUS business.

A modest investment in Ice Carvings Molds, Punch Bowl Molds, liners, disposable drain trays and colored lighting effects will bring you bigger returns than anything you've ever known in the ice business.

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a Pipe Insulation that
WILL NOT DETERIORATE in SERVICE
INSTALL DURABLE, MOISTURE-PROOF
VAPO-WALL NOW!

CHEAP AND EASY TO INSTALL

• lightweight • moisture-proof . . . no swelling, softening or freezing • efficient . . . K factor of .23 to .27 • sanitary . . . no rot, drip or mold • odorless and non-toxic • vermin-resistant

Vapo-Wall pipe insulation, made of Styrofoam, is the ideal covering for all low-temperature lines. Immediate shipment on all common sizes of pipe and fitting covers. Can be installed with good results, even on wet lines, by your own maintenance crew. Write for free booklet and price information.

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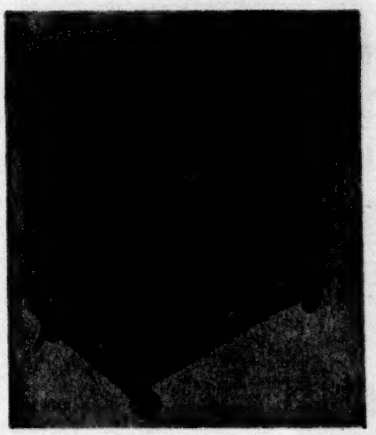

New constant temperature control Bath Machine.

The machine was developed when it was discovered that the mathematical formula to correct for the coefficient of expansion was not sufficiently accurate in dealing with .001 inch tolerances in cylindrical aluminum parts. With two of these new machines, one at the factory, and one at the point of acceptance, the micrometering of parts can be accomplished at exactly the same temperature. Where close tolerances are required, it is claimed that these new machines save production time, and end part rejections. For full information and literature write Service Metal Fabricators Co., 350 North Foothill Road, Beverly Hills, Calif.

MANUFACTURERS' NEWS

Durant Has New Plant For Insulated Pipe

A NEW plant at Warren Way and Bay Road, Palo Alto, Calif., is now occupied by The Durant Insulated Pipe Company. Production of the asphalt-covered, pre-sealed insulated pipe began on October 20. The new Durant plant is on a three acre site, and the warehouse and fabricating areas cover approximately 30,000 square feet. Processes and flow of material through the plant are considerably streamlined compared to practices in the former plant. Use of the most modern material handling devices greatly facilitates production as well as incoming and outgoing shipments. Durant's plant capacity will now be more than twice that of the former plant at 1015 Runnymede Street, Palo Alto.

Durant International Corporation, the Eastern Division of the company, located at Williamstown, N. J., has also expanded production facilities. This division began the manufacture of D. I. P. in May, 1951, and is now supplying Durant Pre-Sealed Insulated Pipe to states east of the Mississippi River.

it's 80° or more below zero in the Saco Lowell lab...

Thanks to VILTER

To assist its operations, the Saco Lowell Shops, manufacturers of textile machinery in Sanford, North Carolina, recently completed their low temperature test room wherein conditions must be controlled and maintained with almost hairline accuracy. The Vilter equipment is successfully producing the exact temperatures required in the special test chamber shown—temperatures of −80° F. are normal but −100° F. is not unusual.

The push-button controlled, automatically operated Vilter Freon 22 compressors at Saco Lowell are arranged for multi-stage operation with Vilter high side accessories such as intercoolers, desuperheater, condenser, etc. The low side air unit is naturally of special design for the purpose intended.

Where exacting conditions must be met, where low temperatures must be maintained unfailingly or where shut-downs may be dangerous or costly . . . there you will find Vilter Refrigeration. Vilter users know that Vilter's superb standards of operation are matched by Vilter's economy in both running and upkeep costs.

The Vilter Distributor who sold and installed the equipment is Morris & Gorrell, Inc., of Raleigh, N. C.

Write for Bulletin No. 220 or for information on the many Vilter products.

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Your nearby Vilter Representative or Distributor will be glad to show you how Vilter can help you.

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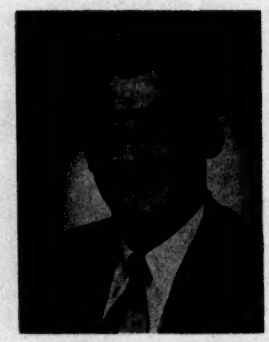
THE VILTER MANUFACTURING COMPANY, MILWAUKEE 7, WIS.

Air Conditioning • Ammonia & Freon Compressors • Booster Compressors • Baudelot Coolers • Double Pipe Coolers • Blast Freezers • Evaporative & Shell & Tube Condensers • Pulsers • Pipe Coils • Valves & Fittings

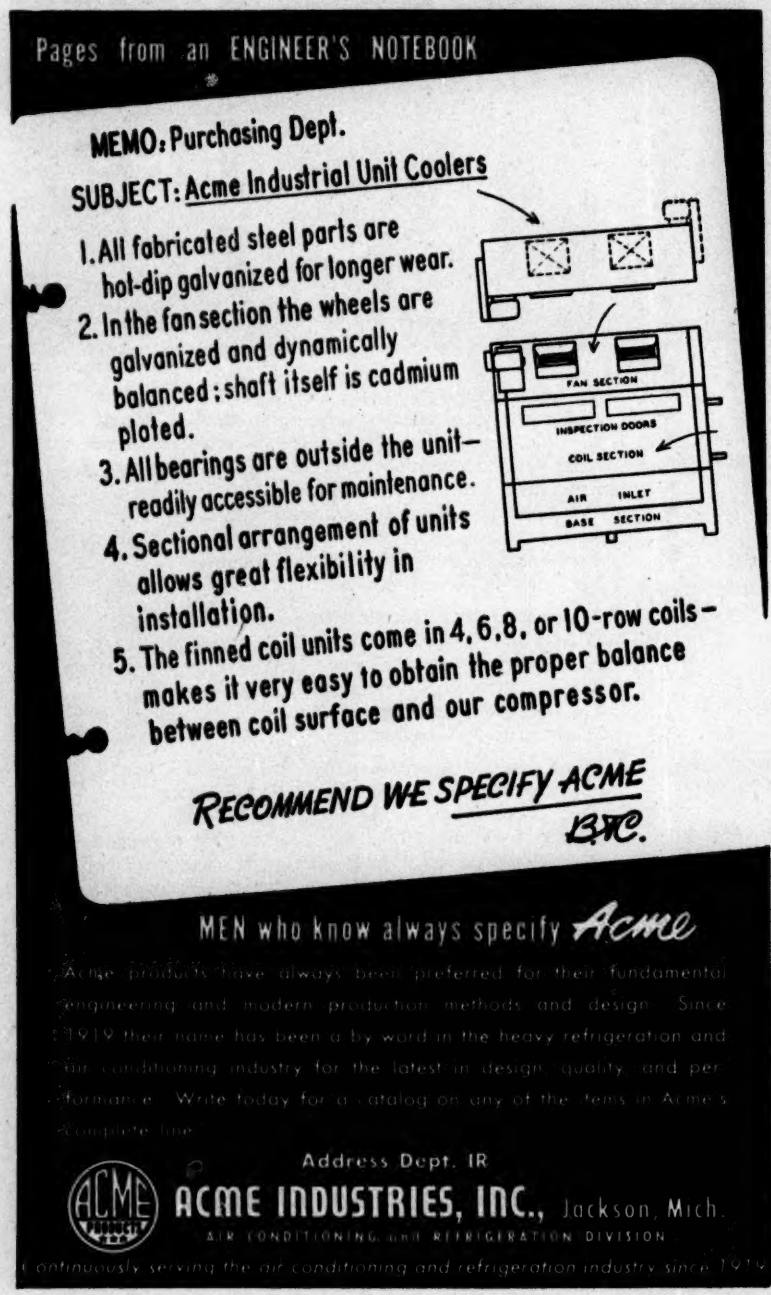
Ozark-York, Inc. Organized

OZARK-YORK, INC., a sales-service firm, representing the York Corporation in southwestern Missouri, has been organized by Donald L. Glaspie and John S. Williams. Glaspie, an NAPRE member, is the president of the new firm and Williams is the secretary-treasurer. Both men were formerly with Shelby-Skipwith, Inc., the York representative at Memphis, Tenn.

In the NAPRE, Glaspie was active with the Memphis Chapter. He is author of "Factors Which Affect the Air Conditioning Load" which appeared in ICE AND REFRIGERATION in 1952 and in the NAPRE Operating Data Book. Don is a member of the ASRE, ASH&VE, ASME, and a graduate of Purdue University, BSME. He served in the United States Navy during World War II as a Lieutenant, USNR.



Donald L. Glaspie


Pages from an ENGINEER'S NOTEBOOK
MEMO: Purchasing Dept.
SUBJECT: Acme Industrial Unit Coolers
1. All fabricated steel parts are hot-dip galvanized for longer wear.
2. In the fan section the wheels are galvanized and dynamically balanced; shaft itself is cadmium plated.
3. All bearings are outside the unit—readily accessible for maintenance.
4. Sectional arrangement of units allows great flexibility in installation.
5. The finned coil units come in 4, 6, 8, or 10-row coils—makes it very easy to obtain the proper balance between coil surface and our compressor.
FAN SECTION
INSPECTION DOORS
COIL SECTION
AIR INLET
BASE SECTION
RECOMMEND WE SPECIFY ACME B.T.C.
MEN who know always specify Acme
Acme products have always been preferred for their fundamental engineering and modern production methods and design. Since 1919 their name has been a by-word in the heavy refrigeration and air conditioning industry for the latest in design, quality, and performance. Write today for a catalog on any of the items in Acme's complete line.
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ACME INDUSTRIES, INC., Jackson, Mich.
AIR CONDITIONING and REFRIGERATION DIVISION
Continuously serving the air conditioning and refrigeration industry since 1919

Merger Is Formed by Activated Carbon Concerns

COMBINATION of all activated carbon, solvent recovery and air purifications operations into one streamlined organization known as the Barnebey-Cheney Company has been announced. The merger of the 33-year-old Barnebey-Cheney Engineering Co. and the 28-year-old American Solvent Recovery Corp. was revealed by Dr. O. L. Barnebey, president. The Pur Air Division of the former American Solvent Recovery Corp., will continue as an operating division of the newly-organized Barneby-Cheney Co.

All activities in the new company will be handled by three separate operating divisions. The Pur Air Division, headed by Art Cox, Sr., offers a complete line of effective adsorbers and units for the removal of odors from air for industrial, commercial and domestic applications. The Adsorbite Division manufactures activated carbons for gas adsorption, air purification, solvent recovery, catalysis, gas masks, and related industrial purposes. The Solvent Recovery Division designs and builds complete plants for the recovery of volatile organic solvents.

New Vending Stations

THE following companies have installed S & S ice vending equipment:

Ice Manufacturing Co. Ltd., Montreal, Canada.

Gerber's Super Market, Mt. Vernon, Ind.

Duval Ice & Coal Co., Jacksonville, Fla.

Newton Ice & Cold Storage Co., Newton, Kans.

Corona Ice Service, Corona, Calif.

Gateway Bait & Tackel House, Hamstead, Fla.

Connersville Ice Co., Connersville, Ind.

Wisner Ice Service, Wisner, La.

Goodman Lockers, Cloverdale, Cal.

Liquid Carbonic Increases Stock

SHAREHOLDERS of the Liquid Carbonic Corporation have voted to increase authorized common stock from 1,200,000 to 2,000,000 shares. The company is negotiating for purchase of another company. Earnings for October and November, according to P. F. Lavedan, chairman, were slightly above those for the corresponding 1951 period. He expected business for the full quarter to show a gain.

SELL MORE ICE *Automatically*
INSTALL a POLAR VENDOR in Your STORAGE ROOM or VAULT

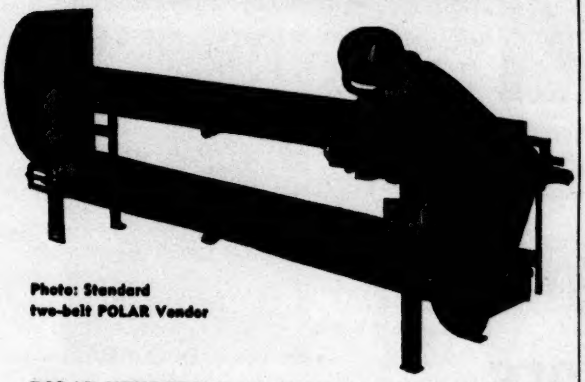

Photo: Standard two-belt POLAR Vendor

POLAR VENDORS are available in 1, 2, 3 or 4 belts for vending either cakes or bags of ice. Also, in combination units for vending two types of ice.

Write Today for descriptive literature & prices on the complete line of POLAR Ice Vending Equipment and Ice Stations. Dept. 253.

[redacted]

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- *Convenient 2½" x 5" Vest-Pocket size.*
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One of refrigeration's oldest and still most frequently used reference by operating engineers in plants using refrigeration equipment. Tables and concise statements on hundreds of subjects enable you to select equipment, make alterations and load calculations with confidence.

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You're sure of top quality and prompt delivery when you specify Solvay Calcium Chloride for brine making. In addition, you get the assistance of Solvay Technical Service on any special problem you may have regarding the preparation or care of your brine.

You get economy too when you use Solvay Calcium Chloride because this is the standard low-cost, low-temperature brine medium. Solvay Calcium Chloride promotes maximum life of your equipment and reduces the possibility of costly shut-downs and repairs. When you order, be sure to specify Solvay Calcium Chloride. Available for immediate delivery from dealers and warehouse stocks in principal cities.

FREE BRINE MAINTENANCE CHART . . . information on the preparation, strengthening and maintenance of Calcium Chloride Refrigeration Brine . . . and prices and location of nearest stock are available on request. MAIL COUPON TODAY!

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SOLVAY PROCESS DIVISION, Allied Chemical & Dye Corporation
61 Broadway, New York 6, N. Y.

Please send me, without cost or obligation, your free Brine Maintenance Chart . . . information on the preparation, strengthening and maintenance of Calcium Chloride Refrigeration Brine . . . and prices and location of nearest stock.

Name.....

Company.....

Address.....

City.....*Zone*.....*State*..... 56-2

Link Belt Appoints Sales Manager Caldwell Plant

THE appointment has been announced of Hubert J. McCormick as sales manager of the Caldwell plant of Link-Belt Company, 2410 West 18th Street, Chicago, succeeding Erwin A. Wendell, currently on leave. In his new position, he will supervise the sale of Caldwell plant material handling systems, icing equipment, power transmission, and car haul equipment.

Mr. McCormick started his career with Link-Belt in 1929 as an engineer of the Caldwell plant. He transferred to plant sales in 1938. Since 1945 he has had charge of sale of conveyors and process equipment as

H. J. McCormick

used in manufacturing plants. He is a Registered Engineer of the State of Illinois.

AIR GAS AMMONIA

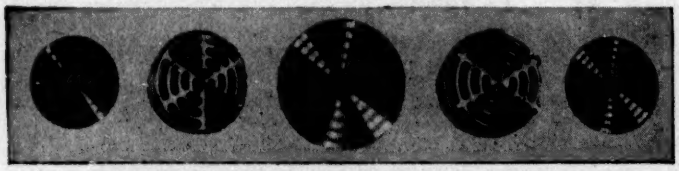
compressor operators

do you want peak performance

- Quiet, vibration-free operation
- 20 to 60% more valve area
- Less power consumption
- Low pressure loss
- Normal discharge temperature
- Lower operating costs

if you do . . . *investigate the established advantages of VOSS VALVES for your machines.*

VOSS VALVES are made to specifications, machined from solid stock (not cast)—PLATES are machined and ground (not press formed) for precise high-tolerance fit; VALVES and PLATES are of heat-treated alloy and stainless steel; the PLATES are dimensionally stable, ductile, resist fracture, high temperatures and corrosion; withstand fatigue; won't chip, crack or score cylinder walls.



To increase the efficiency of your compressor, send us the name, bore, stroke and speed of your machine. Our detailed proposal will be sent without obligation.

VOSS VALVES

J. H. H. VOSS CO. INCORPORATED

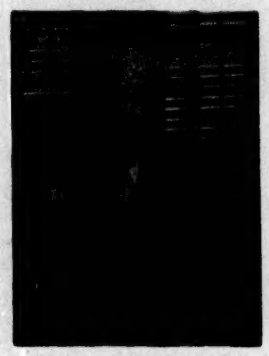
781 East 144th Street, New York 54, N. Y.

Baker Appoints Two Vice Presidents

THE appointment of two vice-presidents of The Baker Refrigeration Corp., South Windham, Me., has been announced by Otto A. Pfaff, president.

Fred G. Riedel

Fred G. Riedel has had complete charge of all engineering for Baker air conditioning and refrigeration products and will continue to do so. He received his technical education at Hoehere Maschinenbauschule, Esslingen, Germany before coming to the United States in 1927. He spent five years as a heating and ventilating engineer for the York Heating and Ventilating Company and the Carrier Corporation. From 1935 to 1937 he was connected with the Houde Engineering Corporation of Buffalo in an engineering capacity. After being with Houde, he became chief engineer of the Air Conditioning and Refrigeration Division of Worthington Pump and Machinery Corporation.



Charles Knox

Charles Knox's wide knowledge and production experiences in both Freon and Ammonia refrigeration qualify him for this important assignment. He has been works manager at Baker and will continue to have general supervision of all production manufacturing. Mr. Knox joined the Baker organization in 1910 in Omaha, Nebr. and managed the factory operation there for several years.

THE BUYERS DIRECTORY

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ABSORBERS
Frick Co., Waynesboro, Pa.
Vogt Machine Co., Henry, Louisville, Ky.

AIR COMPRESSORS
Frick Co., Waynesboro, Pa.

AIR CONDITIONING EQUIPMENT
Frick Co., Waynesboro, Pa.
Howe Ice Machine Co., Chicago, Ill.
Niagara Blower Co., New York, N. Y.
Vilter Mfg. Co., Milwaukee, Wis.

AMMONIA COMPRESSOR VALVES
Frick Co., Waynesboro, Pa.
Howe Ice Machine Co., Chicago, Ill.
Vilter Mfg. Co., Milwaukee, Wis.

AMMONIA COMPRESSORS
Creamery Package Mfg. Co., Chicago, Ill.
Dersch, Gesswein & Neuert, Inc. Chicago, Ill.
Enterprise Equipment Corp., Yonkers, N. Y.
Frick Co., Waynesboro, Pa.
Kehoe Machinery Co., Inc., R. P., West Englewood, N. J.
Reynolds Mfg. Co., Springfield, Mo.
Vilter Mfg. Co., Milwaukee, Wis.
Vogt Machine Co., Henry, Louisville, Ky.

AMMONIA CONTROL DEVICES
Dersch, Gesswein & Neuert, Inc., Chicago, Ill.

AMMONIA FLOAT VALVES
Acme Industries, Inc., Jackson, Mich.
Armstrong Machine Works, Three Rivers, Mich.
Frick Co., Waynesvoro, Pa.
Phillips & Co., H. A., Chicago, Ill.
Vilter Mfg. Co., Milwaukee, Wis.
Vogt Machine Co., Henry, Louisville, Ky.

AMMONIA MANUFACTURERS
Armour Ammonia Div., Armour & Co., Chicago, Ill.
Bower Chemical Mfg. Co., Henry Philadelphia, Pa.
du Pont de Nemours & Co., Inc., E. I., Polychemicals Dept., Wilmington, Del.

AMMONIA PURIFIERS
Dersch, Gesswein & Neuert, Inc., Chicago, Ill.
Frick Co., Waynesboro, Pa.
Howe Ice Machine Co., Chicago, Ill.
International Salt Co., Inc., Scranton, Pa.
Vilter Mfg. Co., Milwaukee, Wis.
Vogt Machine Co., Henry, Louisville, Ky.

AMMONIA RECEIVERS
Acme Industries, Inc., Jackson, Mich.
Creamery Package Mfg. Co., Chicago, Ill.
Dersch, Gesswein & Neuert, Inc., Chicago, Ill.
Enterprise Equipment Corp., Yonkers, N. Y.
Frick Co., Waynesboro, Pa.
Howe Ice Machine Co., Chicago, Ill.
Kehoe Machinery Co., Inc., R. F., West Englewood, N. J.
National Pipe Bending Co., New Haven, Conn.
Reynolds Mfg. Co., Springfield, Mo.
Vilter Mfg. Co., Milwaukee, Wis.
Vogt Machine Co., Henry, Louisville, Ky.

AMMONIA VALVES & FITTINGS
Dersch, Gesswein & Neuert, Inc. Chicago, Ill.
Shank Co., Cyrus, Chicago, Ill.
Vilter Mfg. Co., Milwaukee, Wis.
Vogt Machine Co., Henry, Louisville, Ky.

ARCHITECTS AND ENGINEERS
Greene, Van R. H., New York, N. Y.
Ophuls & Associates, Fred, New York, N. Y.

ASPHALT PRODUCTS
American Bitumuls & Asphalt Co. San Francisco, Calif.

AUTOMATIC CONTROL DEVICES
Alco Valve Co., St. Louis, Mo.
Armstrong Machine Works, Three Rivers, Mich.
Frick Co., Waynesboro, Pa.
Phillips & Co., H. A., Chicago, Ill.
Rex Engineering & Sales Co., Oklahoma City, Okla.
Vilter Mfg. Co., Milwaukee, Wis.

BAGS, ICE
Index Coupon & Supply Co., La Porte, Ind.
Union Bag & Paper Corp., New York, N. Y.

BAGS, WATERPROOF PAPER
Index Coupon & Supply Co., La Porte, Ind.
Union Bag & Paper Co., New York, N. Y.

BEER COOLERS
Frick Co., Waynesboro, Pa.
Martocello & Co., Jos. A., Philadelphia, Penna.
Vilter Mfg. Co., Milwaukee, Wis.
Vogt Machine Co., Henry, Louisville, Ky.

BLOWERS
Frick Co., Waynesboro, Pa.
Roots-Connersville Blower Corp., Connersville, Ind.

BOILERS
Frick Co., Waynesboro, Pa.
Vogt Machine Co., Henry, Louisville, Ky.

BOILER TUBES
Byers Co., A. M., Pittsburgh, Pa.

BOOKS—TECHNICAL
Nickerson & Collins Co., Chicago, Ill.

BRINE CIRCULATORS
Creamery Package Mfg. Co., Chicago, Ill.
Frick Co., Waynesboro, Pa.
Reynolds Mfg. Co., Springfield, Mo.
Roots-Connersville Blower Corp., Connersville, Ky.
Vilter Mfg. Co., Milwaukee, Wis.

BRINE COOLERS
Acme Industries, Inc., Jackson, Mich.
Dersch, Gesswein & Neuert, Inc., Chicago, Ill.
Enterprise Equipment Corp., Yonkers, N. Y.
Frick Co., Waynesboro, Pa.
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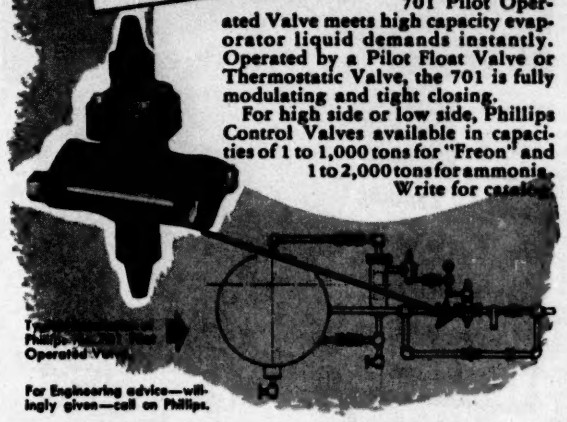
REFRIGERANT SUPPLY MEETS DEMANDS... Automatically

with PHILLIPS FLOAT CONTROLS

PILOT OPERATED LIQUID CONTROL VALVES

The Phillips No. 701 Pilot Operated Valve meets high capacity evaporator liquid demands instantly. Operated by a Pilot Float Valve or Thermostatic Valve, the 701 is fully modulating and tight closing.

For high side or low side, Phillips Control Valves available in capacities of 1 to 1,000 tons for "Freon" and 1 to 2,000 tons for ammonia. Write for catalog.



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REPRESENTATIVES: The C & S Equipment Co., 2103 S. San Pedro St., Los Angeles, Cal. • Mason Emanuels Co., 90 Dearborn St., Seattle 4, Wash.

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Est. 1858

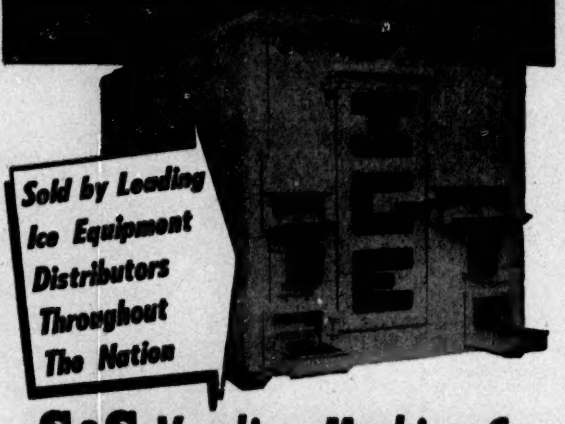
HENRY BOWER CHEMICAL MANUFACTURING COMPANY
29TH AND GRAY'S FERRY ROAD
PHILADELPHIA 46, PA.

SERVING THE ICE INDUSTRY FOR 20 YEARS

Dependable Automatic Refrigerated

S&S ICE VENDING STATIONS

AND ICE VENDING EQUIPMENT



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670 LINCOLN AVE., SAN JOSE, CALIFORNIA

YOU DON'T WANT BACK-SEATING IN THE THEATRE. BUT YOU DO IN YOUR VALVES!

Back row seats at that latest Broadway hit are not desirable but backseating in a refrigeration valve is something else again.

•

All WOLF-LINDE Valves are backseating so they can be repacked under pressure. And the method of backseating used in WOLF-LINDE Valves is a hit in its own right—the backseating is accomplished by means of a tapered shoulder on the stem rather than by a backseating action of the disc. This construction makes it impossible to pull the disc off the stem and also, since the back seat is out of the line of flow, prevents faulty backseating due to accumulation of scale and dirt.

•

WOLF-LINDE integrity of design assures you of the best valves that money can buy.

Ask for a FREE Catalog.

DERSCH, GESSWEIN & NEUERT, INC.

4849 W. Grand Ave., Chicago 39, Ill.

THE BUYERS

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International Salt Co., Inc., Scranton, Pa.

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Solvay Process Div., The Allied Chemical & Dye Corp., New York, N. Y.

CAN DUMPS
Frick Co., Waynesboro, Pa.
Gifford-Wood Co., Hudson, N. Y.
Kehoe Machinery Co., Inc., R. P., West Englewood, N. J.
Ohio Galvanizing & Mfg. Co., Niles, Ohio
Reynolds Mfg. Co., Springfield, Mo.
Vilter Mfg. Co., Milwaukee, Wis.
Vogt Machine Co., Henry, Louisville, Ky.

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Howe Ice Machine Co., Chicago, Ill.
National Pipe Bending Co., New Haven, Conn.
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Vogt Machine Co., Henry, Louisville, Ky.

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Frick Co., Waynesboro, Pa.

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Jamison Cold Stge. Door Co., Hagerstown, Md.
Refrigeration Engineering Co., Montgomery, Minn.

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(See Ice Making and Refrigerating Machinery)

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Kehoe Machinery Co., Inc., R. P., West Englewood, N. J.
King-Zeero Co., Chicago, Ill.
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Vilter Mfg. Co., Milwaukee, Wis.
Vogt Machine Co., Henry, Louisville, Ky.

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Ophuls & Associates, Fred, New York, N. Y.

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DIRECTORY

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Armstrong Cork Co., Lancaster, Pa.

FIELD ICE SAWS
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FILTERS, WATER
Frick Co., Waynesboro, Pa.

FIN COILS
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Howe Ice Machine Co., Chicago, Ill.
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Vogt Machine Co., Henry, Louisville, Ky.

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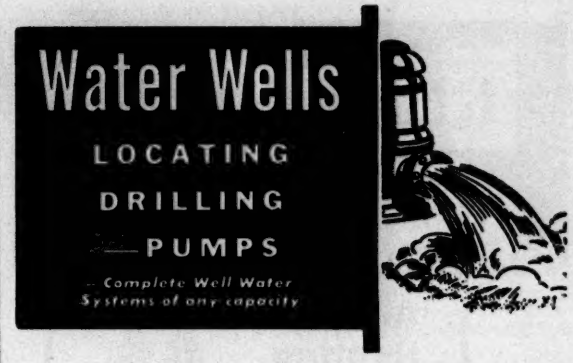
Dersch, Gesswein & Neuert, Inc., Chicago, Ill.
Detroit Ice Machine Co., Detroit, Mich.
Enterprise Equipment Corp., Yonkers, N. Y.
Frick Company, Waynesboro, Pa.
Howe Ice Machine Co., Chicago, Ill.
Kehoe Machinery Co., Inc., R. P., West Englewood, N. J.
Reynolds Mfg. Co., Springfield, Mo.
Vilter Mfg. Co., Milwaukee, Wis.
Vogt Machine Co., Henry, Louisville, Ky.



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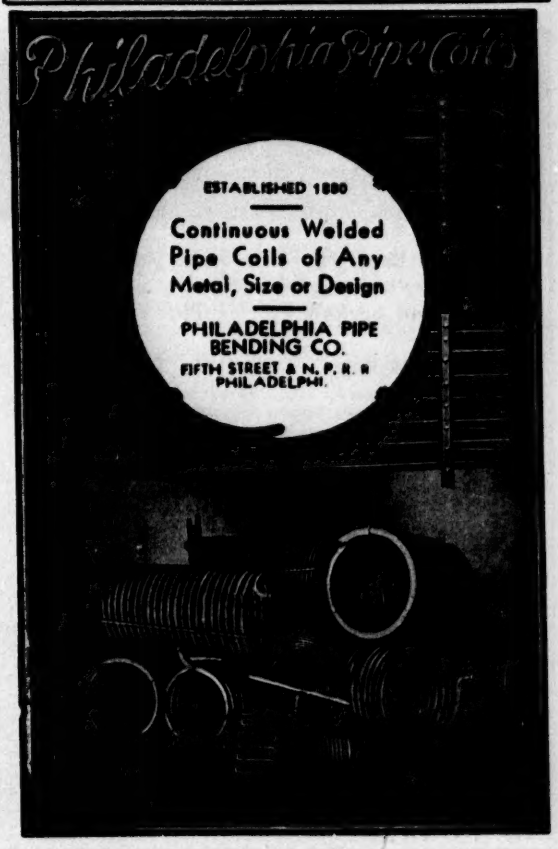
General Offices, Memphis 8, Tenn.

WATER WELLS
VERTICAL TURBINE PUMPS
WATER TREATMENT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ESTABLISHED 1880
Continuous Welded Pipe Coils of Any Metal, Size or Design
PHILADELPHIA PIPE BENDING CO.
FIFTH STREET & N. P. R. R.
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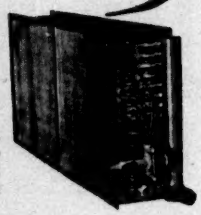
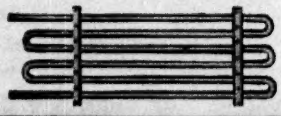
REMPE

Pipe Coils
Fin Coils
For Refrigeration, Air Conditioning, Heating



Coils and Bends of any Metal, Size or Design. Engineered to your requirements. Designed and built for longest life and the least maintenance.

Send your problems to us for engineering assistance.



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REMPE COMPANY
348 N. Sacramento Blvd., Chicago 12, Ill.

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Paper Bags	Ice Vendors
Coupon Books	Pick Vendors
Canvas Bags	Ice Picks
Ice Crushers	Small Tools

FAST SERVICE

26 YEARS EXPERIENCE

LOW PRICES

Complete catalog for the asking.

INDEX COUPON & SUPPLY CO.
ORDER TODAY — NOW!!!
LaPorte, Indiana

THE BUYERS

INDEX TO ADVERTISEMENTS OF THESE FIRMS — PAGE 72

ICE PICKS AND PLANERS
Gifford-Wood Co., Hudson, N. Y.
Index Coupon & Supply Co., La Porte, Ind.
Vivian Mfg. Co., St. Louis, Mo.

ICE PICK SCABBARDS
Gifford-Wood Co., Hudson, N. Y.
Index Coupon & Supply Co., La Porte, Ind.
Vivian Mfg. Co., St. Louis, Mo.

ICE PLANTS
Enterprise Equipment Corp., Yonkers, N. Y.
Kehoe Machinery Co., Inc., R. P., West Englewood, N. J.

ICE SCALES
Conveyor Co., The, Los Angeles, Calif.
Gifford-Wood Co., Hudson, N. Y.
Index Coupon & Supply Co., La Porte, Ind.
Vivian Mfg. Co., St. Louis, Mo.

ICE TOOLS
Gifford-Wood Co., Hudson, N. Y.
Ice Plant Equipment Co., Inc., Philadelphia, Pa.
Index Coupon & Supply Co., La Porte, Ind.

ICE VENDING KITS
Refrigeration Engineering Co., Montgomery, Minn.

ICE VENDORS
Frick Company, Waynesboro, Pa.
Jamison Cold Storage Door Co., Hagerstown, Md.
Refrigeration Engineering Co., Montgomery, Minn.
S & S Vending Machine Co., San Jose, Calif.
Vivian Mfg. Co., St. Louis, Mo.

INDICATING INSTRUMENTS
Taylor Instrument Cos., Rochester, N. Y.

INSTANTANEOUS HEATERS
National Pipe Bending Co., New Haven, Conn.

INSULATING MATERIALS
Armstrong Cork Co., Lancaster, Pa.
MMM, Inc., Houston, Texas
Pacific Lumber Co., San Francisco, Calif.
Pittsburgh Corning Corp., Pittsburgh, Pa.

INSULATION ADHESIVES
American Bitumuls & Asphalt Co. San Francisco, Calif.

LIFT TRUCKS
Lewis-Shepard Products, Inc., Watertown, Mass.

LOW TEMPERATURE EQUIPMENT
(See Ice Making and Refrigerating Machinery)

MAGNETIC FLOAT SWITCHES
Mojonnier Bros. Co., Chicago, Ill.

MATERIALS HANDLING EQUIPMENT
Ohio Galvanizing & Mfg. Co., Niles, Ohio

OIL AND LUBRICANTS
Sun Oil Co., Philadelphia, Pa.
Texas Co., The, New York, N. Y.

OIL SEPARATORS
King-Zeero Co., Chicago, Ill.
Rex Engineering & Sales Co., Oklahoma City, Okla.
Vilter Mfg. Co., Milwaukee, Wis.

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Sun Oil Co., Philadelphia, Pa.
Texas Co., The, New York, N. Y.

OILS, FUEL
Sun Oil Co., Philadelphia, Pa.
Texas Co., The, New York, N. Y.

PACKINGS
Frick Company, Waynesboro, Pa.
Vivian Mfg. Co., St. Louis, Mo.

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Acme Industries, Inc., Jackson, Mich.
Chicago Nipple Mfg. Co., Chicago, Ill.
Frick Company, Waynesboro, Pa
Kehoe Machinery Co., Inc., R. P., West Englewood, N. J.
National Pipe Bending Co., New Haven, Conn.
Vilter Mfg. Co., Milwaukee, Wis.
Vogt Machine Co., Henry, Louisville, Ky.

PIPE WELDING
Acme Industries, Inc., Jackson, Mich.
National Pipe Bending Co., New Haven, Conn.
Vogt Machine Co., Henry, Louisville, Ky.

PIPING
Acme Industries, Inc., Jackson, Mich.
Byers Co., A. M., Pittsburgh, Pa.
Frick Company, Waynesboro, Pa.
National Pipe Bending Co., New Haven, Conn.
Vilter Mfg. Co., Milwaukee, Wis.
Vogt Machine Co., Henry, Louisville, Ky.

PRESSURE BLOWERS
Roots-Connersville Blower Corp., Connersville, Ind.

PRESSURE REGULATORS
Taylor Instrument Cos., Rochester, N. Y.

PUMPING MACHINERY
Aurora Pump Co., Aurora, Ill.
Layne & Bowler, Inc., Memphis, Tenn.
Roots-Connersville Blower Corp., Connersville, Ind.

PUMPING MACHINERY—AIR LIFT
Roots-Connersville Blower Corp., Connersville, Ind.

PUMPS, AMMONIA AND BRINE
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Roots-Connersville Blower Corp., Connersville, Ind.
Vilter Mfg. Co., Milwaukee, Wis
Vogt Machine Co., Henry, Louisville, Ky.

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PUMPS, ROTARY
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PURGERS
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Frick Company, Waynesboro, Pa.
Rex Engineering & Sales Co., Oklahoma City, Okla.

RAW WATER FREEZING SYSTEMS
Frick Co., Waynesboro, Pa.
Vogt Machine Co., Henry, Louisville, Ky.

REBOILERS
Frick Company, Waynesboro, Pa.
Vogt Machine Co., Henry, Louisville, Ky.

RECORDING THERMOMETERS
Taylor Instrument Cos., Rochester, N. Y.

REFRIGERATED ICE STATIONS
Refrigeration Engineering Co., Montgomery, Minn.
S & S Vending Machine Co., San Jose, Calif.

REFRIGERATING AND ICE MAKING MACHINERY
(See Ice Making and Refrigerating Machinery)

RUST PREVENTATIVES
Bower Chemical Mfg. Co., Henry Philadelphia, Pa.
Wright Chemical Corp., Chicago, Ill.

SCORING MACHINES
Frick Company, Waynesboro, Pa.
Gifford-Wood Co., Hudson, N. Y.
Perfection Ice Scoring Machine Co., Fort Worth, Texas

SECOND HAND MACHINERY
Enterprise Equipment Corp., Yonkers, N. Y.
Kehoe Machinery Co., Inc., R. P., West Englewood, N. J.

SEPARATORS OIL, STEAM AND AMMONIA
Acme Industries, Inc., Jackson, Mich.
Frick Company, Waynesboro, Pa.
King-Zeero Co., Chicago, Ill.
National Pipe Bending Co., New Haven, Conn.
Vilter Mfg. Co., Milwaukee, Wis.
Vogt Machine Co., Henry, Louisville, Ky.

SHOULDER PADS
Gifford-Wood Co., Hudson, N. Y.
Index Coupon & Supply Co., La Porte, Ind.
Vivian Mfg. Co., St. Louis, Mo.

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Bateman Foundry & Machine Co., Inc., Mineral Wells, Texas
Gifford-Wood Co., Hudson, N. Y.
Vivian Mfg. Co., St. Louis, Mo.

STORAGE HEATERS
National Pipe Bending Co., New Haven, Conn.

TANKS
Frick Company, Waynesboro, Pa.
Vogt Machine Co., Henry, Louisville, Ky.

TARPAULINS
Index Coupon & Supply Co., La Porte, Ind.
Vivian Mfg. Co., St. Louis, Mo.

THERMOMETERS
Taylor Instrument Companies, Rochester, New York

THERMOMETERS, RECORDING
Taylor Instrument Cos., Rochester, N. Y.

TIERING MACHINES
Gifford-Wood Co., Hudson, N. Y.

TRAPS, OIL & STEAM
Armstrong Machine Works, Three Rivers, Mich.
Rex Engineering & Sales Co., Oklahoma City, Okla.

UNIT COOLERS
Acme Industries, Inc., Jackson, Mich.
Howe Ice Machine Co., Chicago, Ill.
Niagara Blower Co., New York, N. Y.

USED MACHINERY
Enterprise Equipment Corp., Yonkers, N. Y.
Kehoe Machinery Co., Inc., R. P., West Englewood, N. J.

VALVES AND FITTINGS
Alco Valve Co., St. Louis, Mo.
Frick Company, Waynesboro, Pa.
Henry Valve Co., Chicago, Ill.
Kehoe Machinery Co., Inc., R. P., West Englewood, N. J.
Phillips & Co., H. A., Chicago, Ill.
Shank Co., Cyrus, Chicago, Ill.
Vilter Mfg. Co., Milwaukee, Wis.
Vogt Machine Co., Henry, Louisville, Ky.

VALVES, COMPRESSOR
Voss, Inc., J. H. H., New York, N.Y.

WATER COOLERS
Acme Industries, Inc., Jackson, Mich.
Niagara Blower Co., New York, N. Y.
Vilter Mfg. Co., Milwaukee, Wis.
Vogt Machine Co., Henry, Louisville, Ky.

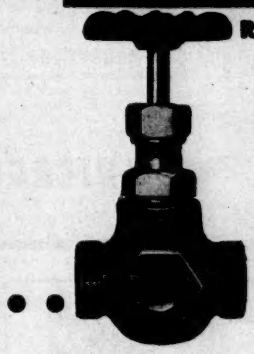
WATER TREATMENT MATERIALS
Barada & Page, Inc., Kansas City, Mo.
International Salt Co., Inc., Scranton, Pa.
Wright Chemical Corp., Chicago, Ill.

WELDING
Frick Company, Waynesboro, Pa
Vilter Mfg. Co., Milwaukee, Wis.
Vogt Machine Co., Henry, Louisville, Ky.

WELL SCREENS
Layne & Bowler, Inc., Memphis, Tenn.

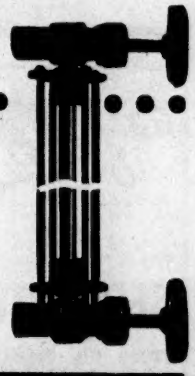
WROUGHT IRON PIPE
Byers Co., A. M., Pittsburgh, Pa.

shank AMMONIA VALVES AND REFRIGERATION PRODUCTS



SEMI-STEEL SHUT-OFF VALVE

Highest grade non-porous metal—full size ports—clean cut threads. Back seated stem — Shank design base—perfect alignment. Long life packing ring.



ALL-STEEL GAUGE SETS

All-Steel Construction. Automatic shut-off of liquid in case of glass breakage. Composition packing rings give long life, no-leak seal.

If your jobber doesn't stock—write

CYRUS SHANK CO.
629 W. Jackson Blvd. Chicago 6, Ill.

The GENESEE Brewery

ENDS COOLING PROBLEMS With New STERLING KOOLER KUBES*

*Trademark International Salt Company, Inc.

"Before using Kooler Kubes we had trouble with ordinary salt caking in the pump pans of our brine spray units. Kooler Kubes dissolve evenly and eliminate this trouble. They are also easier to handle and store."

HAROLD KING, *Chief Engineer*
The Genesee Brewing Co., Inc.
Rochester, N. Y.

Kooler Kubes are special, heavily compressed 50-lb. refrigeration salt cubes for unit coolers, brine spray cold diffusers, and spray deck systems.

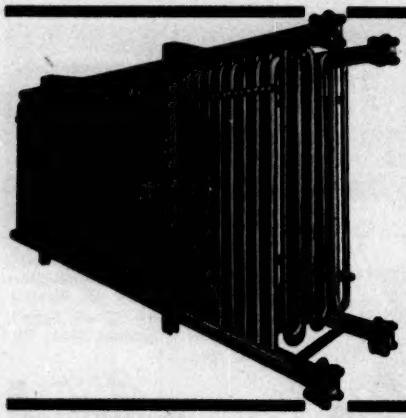
FOR ADDITIONAL INFORMATION SEND COUPON NOW

INTERNATIONAL SALT COMPANY, INC.
Scranton 2, Pennsylvania

☐ Please have a representative call.

☐ Please send additional information.

Signed:
Name
Company
Address
City Zone State



TRICKY?..Not for CHICAGO NIPPLE!

No pipe fabrication is too tough for our skilled staff of experienced metal workers. And no job is beyond the facilities of our well equipped plant whether it involves iron or stainless steel, simple pipe bends, welding or complicated coils.

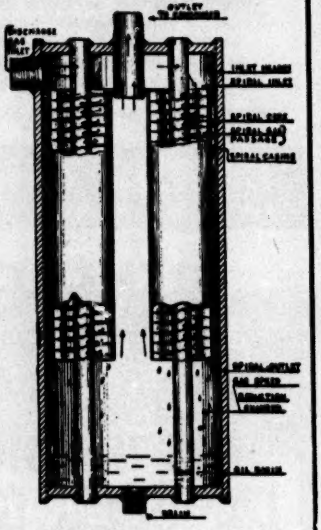
We invite your inquiries.

CHICAGO NIPPLE MANUFACTURING CO.
1997 Clybourn Ave., Chicago 14, Ill.

"King Zeero"

OIL SEPARATOR

STOPS OIL FROM ENTERING CONDENSER RECEIVER AND LOW SIDE



Allows operation as was originally intended. Simple in operation — no parts to wear out — no screens, metal wool or any close screens to clog, raise discharge pressures and cut down capacity.

When used in connection with air compressors, water is also seperated with the oil.

Built for years of trouble free service. Mechanical details on request.

THE KING ZEERO COMPANY
1447-55 Montrose Ave., Chicago 13, Ill.

USED ICE MACHINES & EQUIPMENT

- COMPRESSORS—3x3 to 12x12
- COMPRESSORS—with or without MOTORS
- COMPRESSORS—Diesel or Steam driven
- COMPLETE ICE PLANTS—15 to 50 Tons
- CONDENSERS—TRAVELING CRANES—PIPE — ICE CANS — NEW and USED

See Our Monthly Specials in the Classified Columns

Write or call for complete list of new and reconditioned ice making equipment.

ROBERT P. KEHOE MACHINERY CO., INC.
278 W. Englewood Ave. West Englewood, N. J.
TEnafly 7-3916

For Reliability and Economy

For long-time, dependable performance, always insist upon R-C Rotary Positive Blowers for new equipment or replacements. Send for Bulletin 21-B-37.

ROOTS-CONNERSVILLE BLOWER

Don't try to compete with yourself by using that machine in your plant which is too small for the job! Scan page 71 for the things you need and sell your small equipment through a want ad.

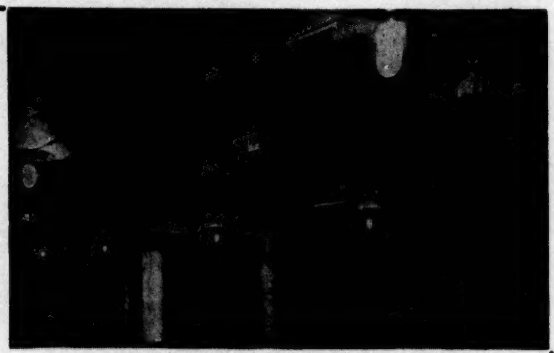
DIMCO CAST ALUMINUM FIN EVAPORATING COIL

★ *Saves Space*
★ *Saves Weight*
★ *SavesCost*

CAN BE USED WITH ANY REFRIGERANT

Write for descriptive folder

DETROIT ICE MACHINE COMPANY
2613 Twelfth St., Detroit 16, Mich.



DIMCO Evaporators in a Frozen Food Storage Room at Great Lakes Terminal Warehouse, Toledo, Ohio. A typical installation facilitating palletizing.

Classified Advertising

All classified advertisements are payable in advance. Except for Position and Help Wanted classifications, this section is reserved exclusively for USED equipment.

RATES: $4.00 for 50 words or less; 70c for each additional 10 words or fraction thereof; $1 per line for bold face headings; $10.00 per inch for line listings.

POSITIONS AND HELP WANTED

Position Wanted—Chief Engineer; fully experienced and in complete charge of operations and maintenance of cold storage warehouse and ice manufacturing plant. Interested in a position out west. Would consider Chief or assistants positions. Can furnish A-1 references. State salary. Write Box FB-8, c/o Ice and Refrigeration.

ICE PLANTS—wanted & for sale

WANTED—50 to 75 ton modern ice plant, in good condition. Prefer large lift. Give make, voltage and price in answer. Maddox Ice Company, 684 Alcott St., Denver 4, Colo.

FOR SALE—All or any part of three complete ice plants. 50 ton, 25 ton and 40 ton in Shawnee, Seminole and Wewoka, Oklahoma. All gas engine drive and Frick compressors and tanks. Shawnee Ice Co., Shawnee, Okla.

FOR SALE—or lease, to responsible party, on attractive basis. 50 ton ice plant which is the only plant in this county of 37,000 population, with no competition. Selling due to death of manager and head of company. Write A. B. Stowers, Harriman, Tenn.

COLD STORAGE BUSINESS—Are you interested in going into the cold storage business in one of the fastest growing cities in Texas? Or, if you are in the cold storage business do you wish to expand? We have a large insulated building that can be converted into a million and a half cubic feet of storage space, located on a main highway accessible for trucks and railroad siding. Shortage of storage space in this area. Can be converted over and investment will pay out in 2½ years. If interested contact O. T. Clark, 1500 Electric Building, Fort Worth, Texas, for details.

FOR SALE—Ill health forces sale of modern 50 ton electric driven ice plant with new modern harvesting, cubing and sizing equipment. Has modern deionizing water treating system for top quality ice. All in excellent condition. Output in the immediate area 8,000 to 10,000 tons. Over 3500 sq. ft. storage adaptable to food freezing. Centrally located in over million population. Close to vegetable and fruit loadings. Will sacrifice this plant, on very desirable highway property, for real estate value for quick sale. $75,000 or will dismantle for removal for $15,000. Will lease to responsible party. Delno Ice Plant, 620 El Camino Real, Menlo Park, Calif.

USED EQUIPMENT-wanted & for sale

FOR SALE—40 used 10-CH Deluxe Campbell removable metal bottom ice bags with #15 ring installing tool. All good condition, 100 lb. The Seymour Packing Co., Topeka, Kansas.

FOR SALE—Frick horizontal double-acting duplex 15"x30" ammonia compressor, complete with 300 h.p., 3 ph., 60 cy., 440 volt slip-ring induction motor and flat-belt drive. Driven speed 67 r.p.m. In operation. Removing soon. Northwestern Ice & Cold Storage Co., 73 S.E. Washington St., Portland 14, Oregon. Phone EAst 3143.

FOR SALE—by owner. Used ice plant equipment, 15 ton capacity; cheap. Also 150 K.V.A. Diesel generator; 150 ice cans size 11x22x49; 6½x6½ York compressor, speed 400 r.p.m. 40 h.p. motor, run less than 100 days. Perfect. Write Versailles Ice Co., Versailles, Mo.

FOR SALE—COMPLETE ICE MAKING PLANTS

60 ton, 14 can pull—35 ton, 6 can pull.
25 ton, 5 can pull.

AMMONIA COMPRESSORS

1—12½ x 14½ York, ½ and ⅔ capacity control.
2—10 x 10 York, 4100 volt, 300 r.p.m. motor.
1—10 x 10 York, 2300 volt, 300 r.p.m. motor.
2—6½ x 6½ York high speed.
1—6 x 6 York high speed.
1—4 x 4 York self contained unit.
1—7¾ x 5 Frick booster compressor.

MISCELLANEOUS EQUIPMENT

130 h.p. 6 cylinder Superior Diesel engine—600 r.p.m., 75 h.p. motor—730 r.p.m., 30 h.p. motor—860 r.p.m., Type 50 F&E cuber—15 h.p. water pump—7½ and 10 h.p. centrifugal blowers—scoring machines—ice cans—agitators—etc.

JOHN F. CARSON
"A" & Venango Sts. Philadelphia 34, Pa.
Phone: GArfield 6-2221

USED EQUIPMENT—continued

FOR SALE—One 3 ton York floor type ammonia blower unit. 3x3, 5x5 York self-contained. 4x4, 5x5, 6x6, 8x8, 9x9 Yorks, splash lubrication. Two 5x5 Fricks. Receivers, all sizes. Ammonia valves, 30% off. Write E. Niebling, 1546 St. Clair Ave., Mt. Healthy, Cincinnati 31, Ohio.

FOR SALE
USED ICE PLANTS AND REFRIGERATING EQUIPMENT
Complete ice plants—10-50 ton.
Ammonia compressors—all sizes.
Condensers, brine coolers, ice cans.
Valves and fittings.
B & E REFRIGERATING CO.
2 ORANGE ST., NEWARK 2, N. J.
Phone: MItchell 3-7790 Cable address "BERECO"

FOR SALE—one 252 can, 300 lb. York ice tank with agitator, dump and filler, 2 can electric hoist, water filter, air blower and air compressor. Practically new. Meadow Gold Products Co., 1337 D St. S.E., Washington 3, D. C.

FOR SALE — NEW ICE BOXES

2—100-lb. Olympics; 1—75-lb. Progress; 1—75-lb. Vitalaire. 2 good used boxes. All for $150.00. Write Mr. Jack Bennett, The Bennett Creamery Co., Ottawa, Kansas.

". . . your time is money"

. . . don't waste it by looking around for personnel or items to make your organization more efficient. A classified ad in Ice and Refrigeration will do the job for you quickly and at low cost. No matter what you need or have to sell, one of our readers will have it or want it. The same goes for personnel.

Rates are shown at the beginning of this section — closing date is the tenth of the month.

May we serve you?

FOR SALE
KEHOE MONTHLY SPECIALS

2—7¼x7¼ high-speed Bakers.
2—8x8 high-speed Carbondale Compressors.
1—9x9 high-speed Worthington Compressor.
3—sets of 10x10 duplex York or Frick, with 225 h.p. syn. motor 300 r.p.m.

ROBERT P. KEHOE MACHINERY CO., INC.
278 W. Englewood Ave. West Englewood, N. J.
Phone: TEaneck 7-3916

FOR SALE—Small ammonia compressors, self-contained units, 6x6 and 9x9. 7½x7½, 9x9 and 12x12 with synchronous motors; ice cans, condensers, brine coolers, agitators, blowers, motors, complete plants. Parke Pettegrew & Son Company, 370 W. Broad St., Columbus 8, Ohio.

FOR SALE
YORK—LATE ICE PLANT EQUIPMENT

1—60 h.p. Century motor—2200 volt.
1—40 h.p. Century motor—2200 volt.
2—Westinghouse magnetic starters.
2—Vertical direct connected agitators, 3 h.p.
1—Hoffman blower.
2—60 KVA condensers or capacitors.
1—2 can Euclid hoist, 1 ton.
1—2 can Euclid hoist, ½ ton.
1—12"x36½' channel with trolleys "Curtis".
1—Cook 8 inch 5-stage turbine deep well pump 5 h.p.
1—Cook 7¾" 10-stage turbine deep well pump 7½ h.p.
1—Meir crane mover.
1—Model JBAZ International water softener complete steel tank—top operated with mixer—one 24" and one 30" pressure filter.
450—400 lb. ice cans, like new, (Ohio), 11½x22½ x57, in brine.
220—white oak dual covers for ice tank—400 lb.
1—Can filling tank, 2 accumulators, brass drop tube and brackets, 2 can dump.
1—Miller ice scoring machine for 400 lb. blocks.
1—Perfection ice scoring machine for 400 lb. blocks.
1—Gifford Wood tiering machine—8 tier.

WHITE FROST ICE CO., INC.
5th & Main Sts. Anderson, Ind.
Phone 7702

FOR SALE — USED ICE PLANTS AND REFRIGERATING EQUIPMENT

2—90 ton York Evaporative Condensers
20 ton Ice Plant, 252 300-lb. Cans, Diesel drive compressor
30 ton Ice Plant, 368 300-lb. Cans, 8 can pull, Electric driven
40 ton Ice Plant, 552 300-lb. Cans, 6 can pull, Diesel driven
130 ton Ice Plant, 1,378 300-lb. Cans, 26 can pull, Electric driven
175 ton Ice Plant, 2 tanks, 969 cans each tank, 1,938 total, 19 can pull, Electric driven
10,000 11" x 22" x 47" 300-lb. Ice Cans, Excellent Condition
2,500 11" x 22" x 51" 300-lb. Ice Cans, Excellent Condition
Ammonia Compressors 3" x 3" to 12½" x 14¼"
Shell & Tube Ammonia Condensers, Brine Coolers, Receivers, Traps, Valves & Fittings
Write, wire or cable us on any equipment you need.

ENTERPRISE EQUIPMENT CORPORATION
77-79 Alexander Street Yonkers, New York
Yonkers 8-8118-9 Cable Address: ENEQCO

PUBLIC AUCTION SALE

Public Sale At
AUCTION
On The Premises
CLEVELAND HOME BREWERY
2515 E. 61st Street
Cleveland Ohio
Date: February 19th, at 11:00 A.M.
Inspection Any Day Prior To Sale, By Appointment.

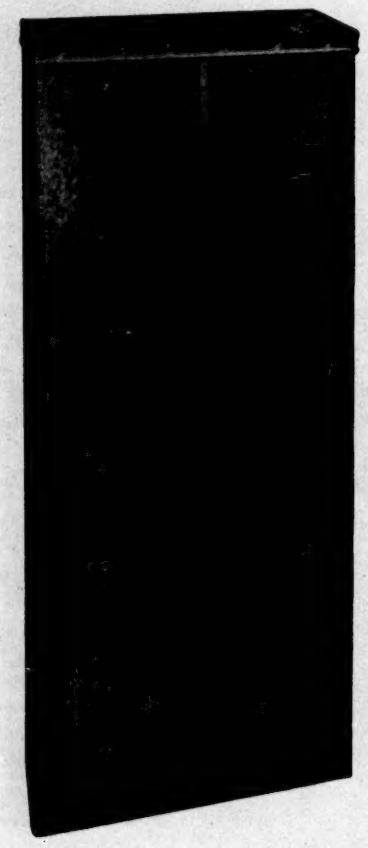
PUBLIC AUCTION SALE

100 TON ICE PLANT

2 10½" x 10½" Vilter compressors. Driven by 100 HP Ideal Synchronous motors, 257 rpm complete with control panels, automatic cut-outs, safety valves.
1 10½" x 10½" Vilter compressor. Driven by 125 HP Ideal Synchronous motor. 300 rpm complete with control panel, automatic cut-out, safety valves.
1 7½" x 7½" Vilter Compressor. 300 rpm. Driven by belt motor drive with 40 HP GE 870 rpm motor. Complete with starting compensator, automatic cut-out safety valves.
1 10" x 10" York Compressor. Driven by 100 HP Ideal Synchronous Motor. 300 rpm. Complete with control panel, automatic cut-out, safety valves.
1 Roots Connersville Compressor. Complete with 7½ HP Motor.
2 Detroit Ice Machine Co. brine agitator. Complete with 2½ HP Motor.
1 2 Ton Detroit Hoist and Machine Co. Overhead Electric Traveling Crane. 3 Motor type, floor controlled, 24' span.
1 5 Can Ice Dump. Complete with 2-5 HP Detroit Electric hoists.
1 Uline Ice Scoring and Moving Machine. No. 248 Motor driven with AC Motor.
1 Greasey Ice Breaker. No. 51Y. Motor driven with AC Motor.
1 Ohio Elevator and Machine Co. 3 HP Ice elevator. 29 rows high.
600 11 x 20c60 galvanized ice cans.
60 Sets of drop pipes.
1 Henry Vogt 30 stand 7 Pass Multitube Ammonia Condenser.
1 15'6" x 24" Ammonia Receiver.
1 13' x 24" Ammonia Receiver.
33 Various Sizes Beer Storage Tanks, Mammut and Glass Lined.

Most Equipment Purchased New in 1947
Also: Pipe, Structural Steel, Scrap Iron, Copper and Brass.
For Further Information, Contact Auctioneers

THE EFFRON CORP.
TRACTION BUILDING
CINCINNATI 2, OHIO
DUnbar 3800



Welded Cans
Integral Tube Cans
Arctic Pownall Cans
Can Baskets
Condenser Trough

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Industrial Trucks and Trailers

THE OHIO GALVANIZING & MFG. CO.
NILES OHIO

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HOW TO SPOT DESIGN DEFECTS

Let Armstrong's LIFE TEST SERVICE check your pilot models before production

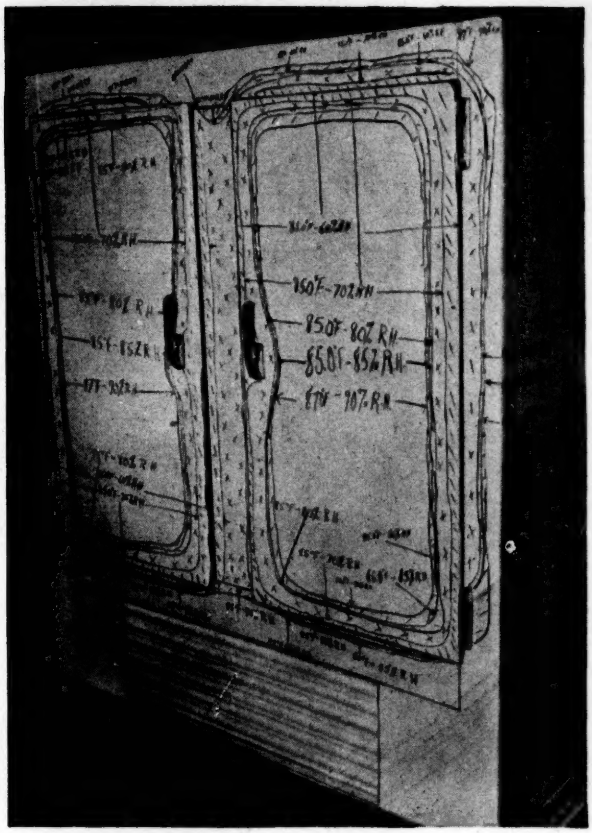
By testing your new equipment models while they're still in the design stage, you can find and correct defects **before** production—prevent potential trouble spots from reaching your customers.

In Armstrong's Life Test Rooms, your refrigerated equipment is put through a series of comprehensive tests. In a few weeks, these tests give an accurate preview of how your units will perform after years of actual service. Tests are designed to reveal possible flaws in insulation as well as structural and mechanical defects.

Here, for example, is how Armstrong helped a refrigerator manufacturer test the construction of a new two-door model. In the photo, "sweat patterns" have been marked on the cabinet. When carefully analyzed at a conference between the manufacturer's engineers and Armstrong research men, these patterns indicated several changes to improve thermal design. Major alteration was change to a lower conductivity Fiberglas of the same thickness to cut down heat flow through cabinet walls and doors. Also, instead of a straight rubber gasket cut to fit around corners, a molded rubber door gasket was recommended to provide a tighter seal.

Excessive condensation between the doors indicated insufficient insulation here. A change in design replaced the bulky wood mullion with a light metal member to allow full thickness of insulation at this point.

Your near-by Armstrong representative will be glad to help you arrange for testing your equipment. Contact him or write direct to Armstrong Cork Company, 4502 Queen Street, Lancaster, Pennsylvania.



After testing, you get a complete and confidential report on the performance of your equipment. Armstrong can put your units through the entire series of tests or you can specify only certain tests, such as sweat patterns. Tests are conducted free, provided one of the models you submit uses any of Armstrong's efficient equipment insulations:—LK® Corkboard, Fiberglas*, or Temlok®.

*® OCFCorp.

ARMSTRONG'S EQUIPMENT INSULATION

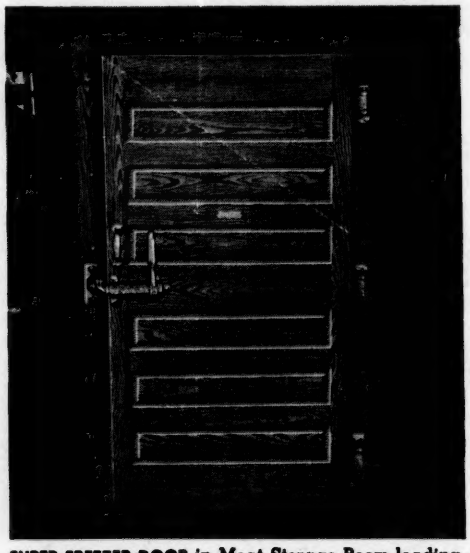
LK CORKBOARD • FIBERGLAS • TEMLOK

with JAMISON Cold Storage Doors

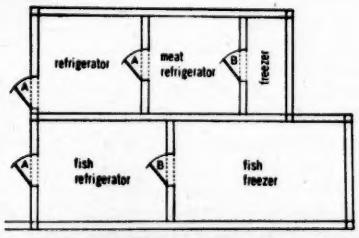
In Jack London's story, the Sea Wolf was a hard adventurous skipper who knew nothing about food protection and cared less. In the modern Sea Wolf Restaurant, in Jack London Square, Oakland, Calif., the skipper and his crew think differently.

They *know* the secret of good food is to keep it fresh. That's why Jamison Cold Storage Doors were selected for this beautiful restaurant. Jamison Cold Storage Door construction, insulation and hardware keep refrigeration and cold storage at peak efficiency.

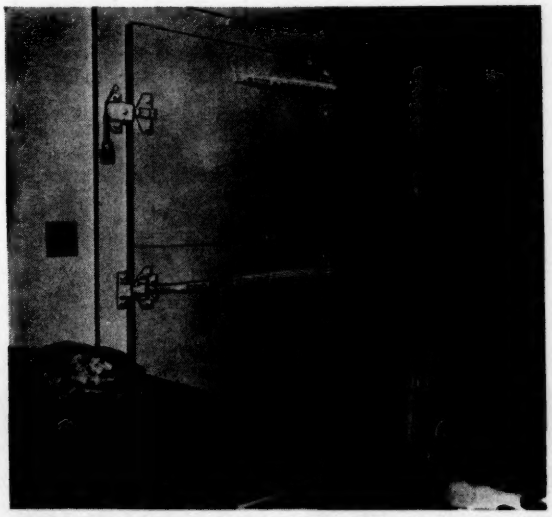
The best architects and contractors specify the *best* in cold storage doors—JAMISON. Architect for the Sea Wolf: Harry A. Bruno, Oakland, Calif. . . . Insulation Contractor: Western Asbestos Co. JAMISON COLD STORAGE DOOR CO., HAGERSTOWN, MD.



SUPER FREEZER DOOR in Meat Storage Room leading to General Freezer.



COLD STORAGE LAYOUT—Three doors marked "A" are 3' x 6'6" Series "50" with 16 gauge Kickplate on front, back and edges 4' up. Two doors marked "B" are Overlap Super Freezer with Metal on back.



SERIES "50" DOORS to Fruit and Vegetable Room and Fish Refrigerator.

JAMISON

HAGERSTOWN, MARYLAND, U. S. A.

The leader for over 50 years